

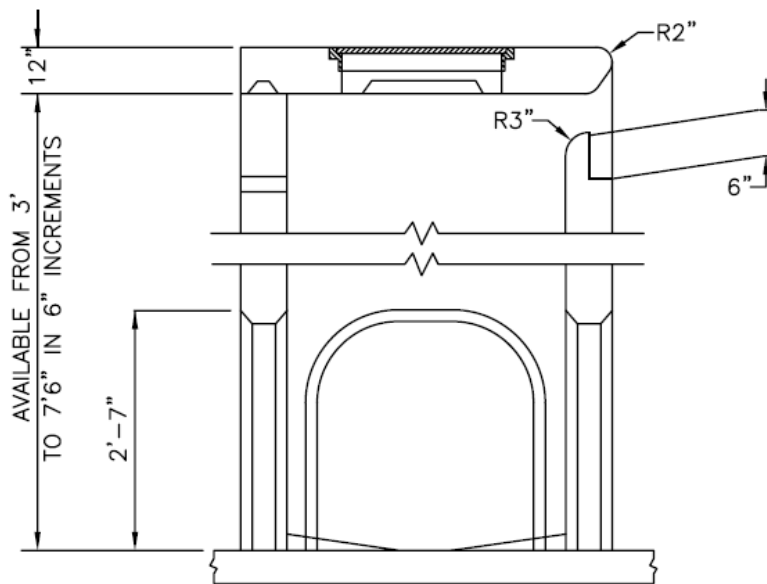


**CITY OF ARANSAS PASS  
STANDARDS MANUAL DETAILS**

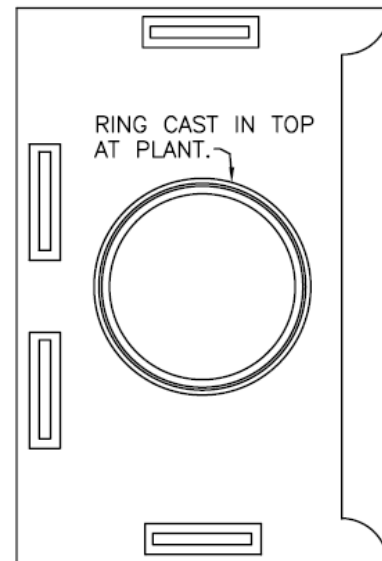


NOTES:

1. PRE CAST TOP MAY BE PLACED ON BED OF MORTAR OR LEFT DRY FOR FUTURE REMOVAL.
2. ALL REINFORCING TO BE #4 ON 12" CENTERS EACH WAY
3. 6 CEMENT SACKS 4000 P.S.I. MINIMUM APPROX. WEIGHT 1300# PER VERTICAL FOOT. TYPE "A" TOP APPROX. 1500#.
4. FOUR LIFT HOLES IN BOX WALL FOR HANDLING.
5. INLET SHALL BE PLACED ON 6-INCH SAND BEDDING. SUBGRADE SHALL BE COMPACTED TO 95% DENSITY



CROSS SECTION



TOP VIEW PRECAST LID

## PRECAST TYPE "A" INLET DETAIL

NOT TO SCALE



**CITY OF ARANSAS PASS**

**600 w. Cleveland Blvd.**

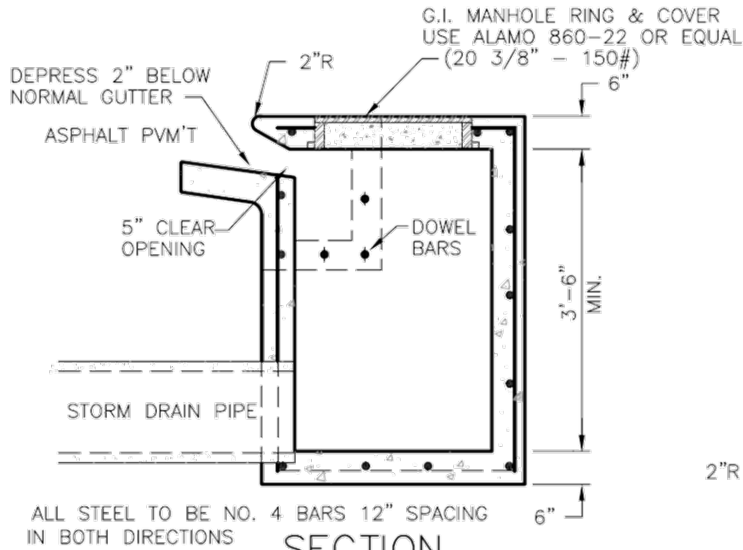
**Aransas Pass, TX 78336**

**Office: (361) 758-5301 Fax: (361) 758-4854**

**Standards Manual**

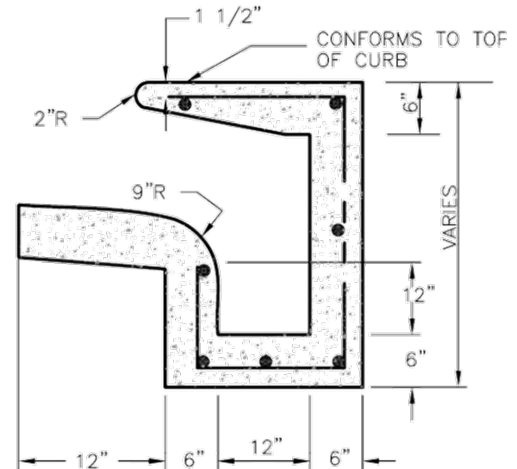
**Precast Type "A" Inlet Detail**

Standard Detail:	DR-01
Date Modified:	7/21/15



**NOTES:**

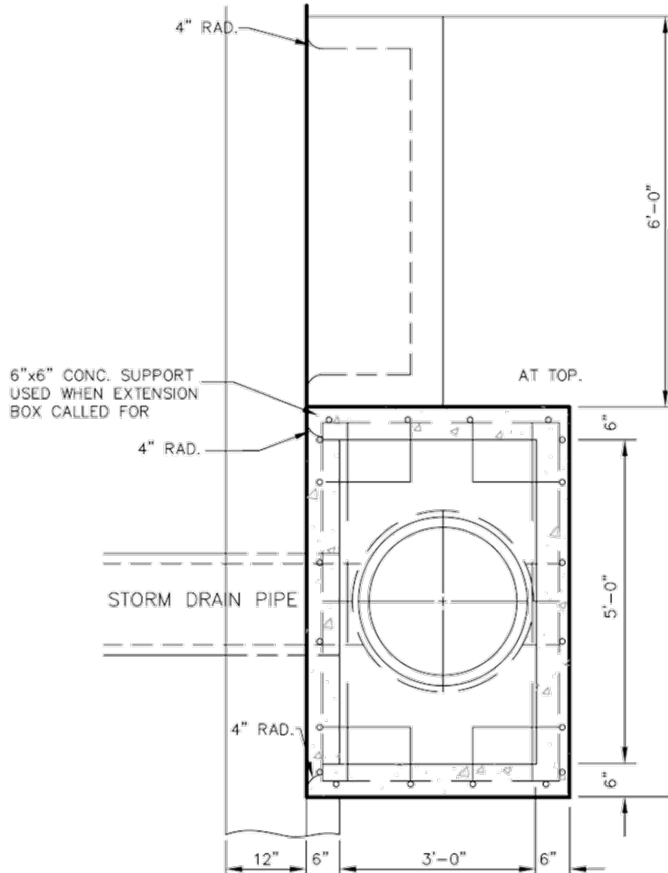
1. INLET SHALL BE PLACED ON 6-INCH SAND BEDDING.
2. SUBGRADE SHALL BE COMPACTED TO 95% DENSITY



ALL STEEL TO BE NO. 4 BARS ON 12\"/>

**INLET EXTENSION**

NOTE: NOT TO SCALE



No. 4 VERTICAL REINF. HOOK 15\"/>

**PLAN**

SLOPE BOTTOM OF INLET EXTENSION 1/2\"/>



**CITY OF ARANSAS PASS**

**600 w. Cleveland Blvd.**

**Aransas Pass, TX 78336**

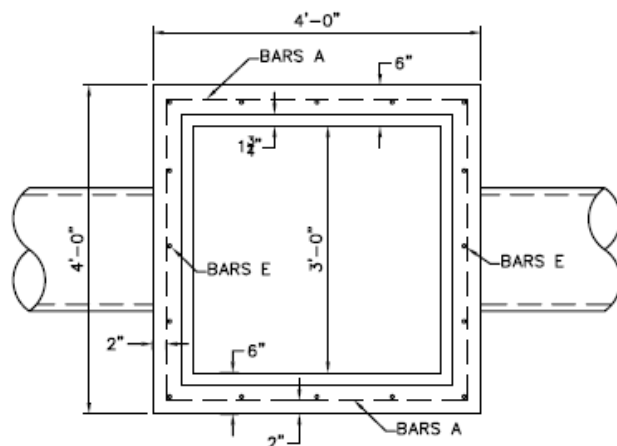
**Office: (361) 758-5301 Fax: (361) 758-4854**

**Standards Manual**  
**Cast-In-Place Type "A" Inlet**

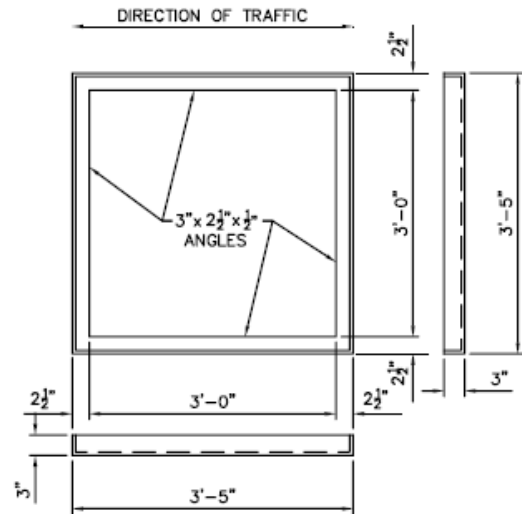
Standard Detail:	DR-02
Date Modified:	7/21/15



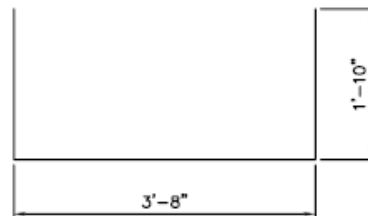




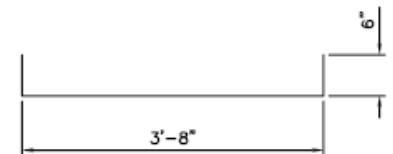
TOP VIEW



FRAME DETAIL



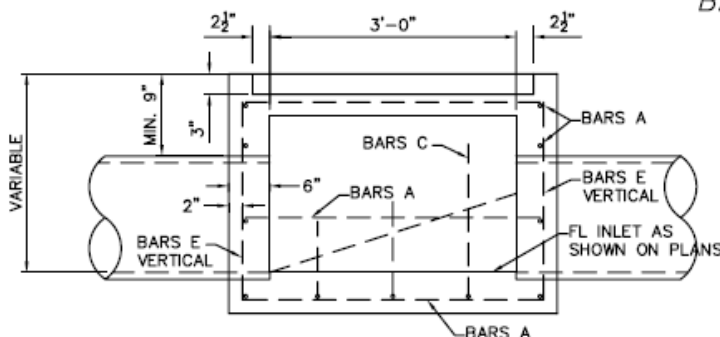
BAR C



BARS A

#### REINFORCING STEEL DETAILS

- NOTE:
1. ALL STEEL TO BE No. 4 BARS ON 12" SPACING IN BOTH DIRECTIONS EXCEPT IN TOP SLAB OR MANHOLE.
  2. ALL GRATE INLET COVERS SHALL BE PEDESTRIAN SAFE COVERS. OPENINGS SHALL BE NO GREATER THAN 3/8" WIDE.
  3. INLET SHALL BE PLACED ON 6-INCH SAND BEDDING. SUBGRADE SHALL BE COMPACTED TO 95% DENSITY



SIDE VIEW

## TYPE "C" GRATE INLET

NOT TO SCALE

NOTE:  
WHERE CALLED FOR, INLET GRATE SHALL HAVE  
EXPANDED METAL, FOR BICYCLE SAFETY.



**CITY OF ARANSAS PASS**

**600 w. Cleveland Blvd.**

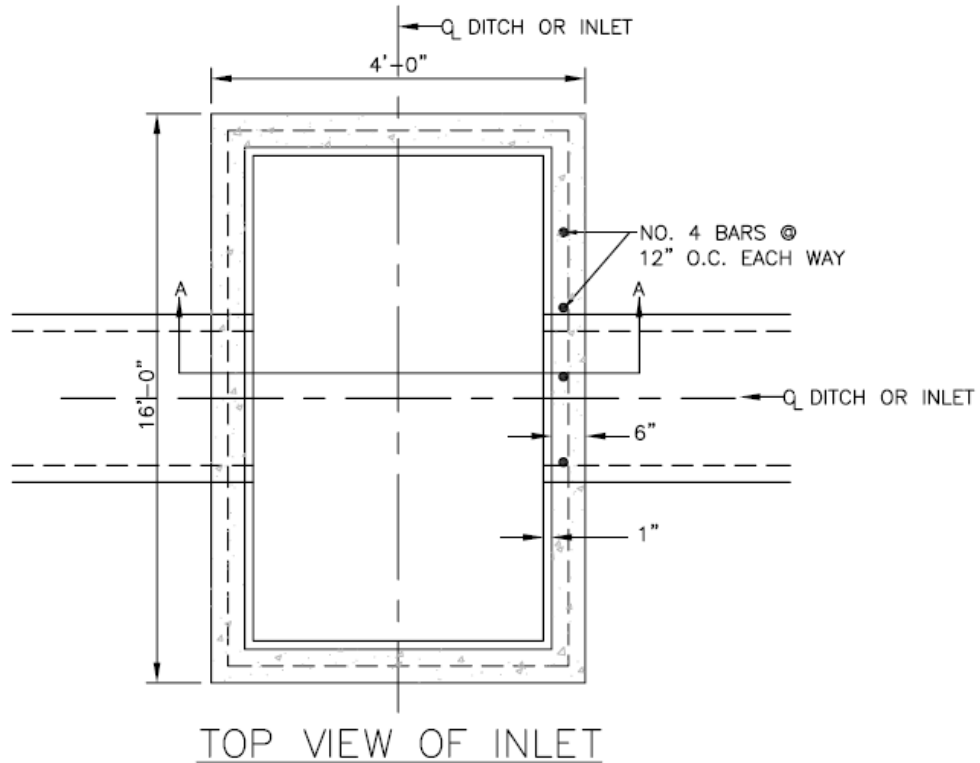
**Aransas Pass, TX 78336**

**Office: (361) 758-5301 Fax: (361) 758-4854**

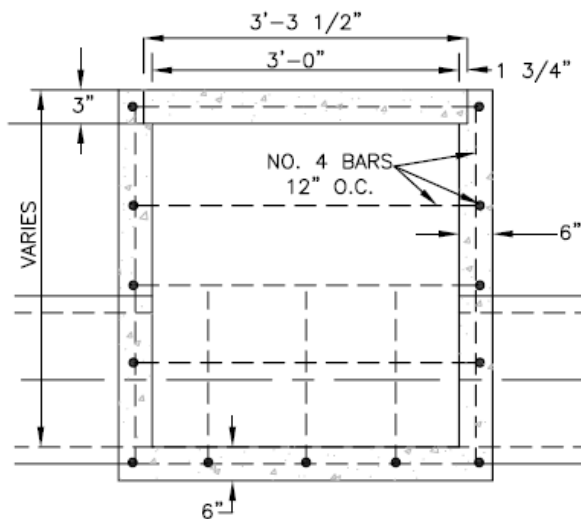
**Standards Manual**

**Type "C" Grate Inlet**

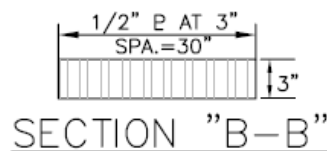
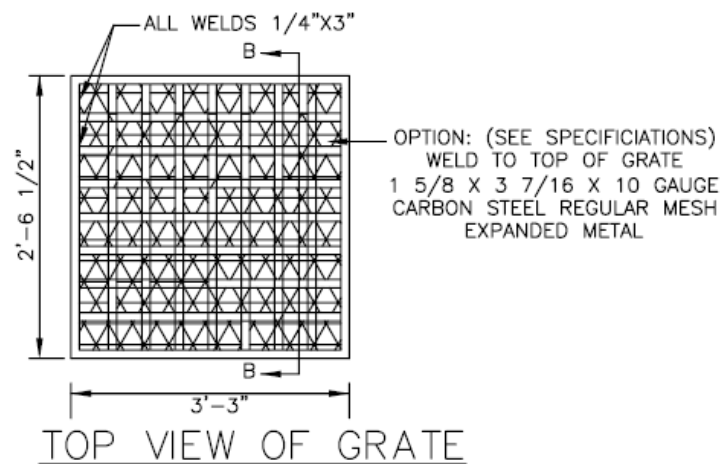
Standard Detail:	DR-04
Date Modified:	7/21/15



NOTE:  
WHERE CALLED FOR, INLET GRATE SHALL HAVE  
EXPANDED METAL, FOR BICYCLE SAFETY.



NOTE: NOT TO SCALE



NOTE:  
INLET SHALL BE PLACED ON 6-INCH  
SAND BEDDING.  
SUBGRADE SHALL BE COMPACTED TO  
95% DENSITY



## CITY OF ARANSAS PASS

**600 w. Cleveland Blvd.**

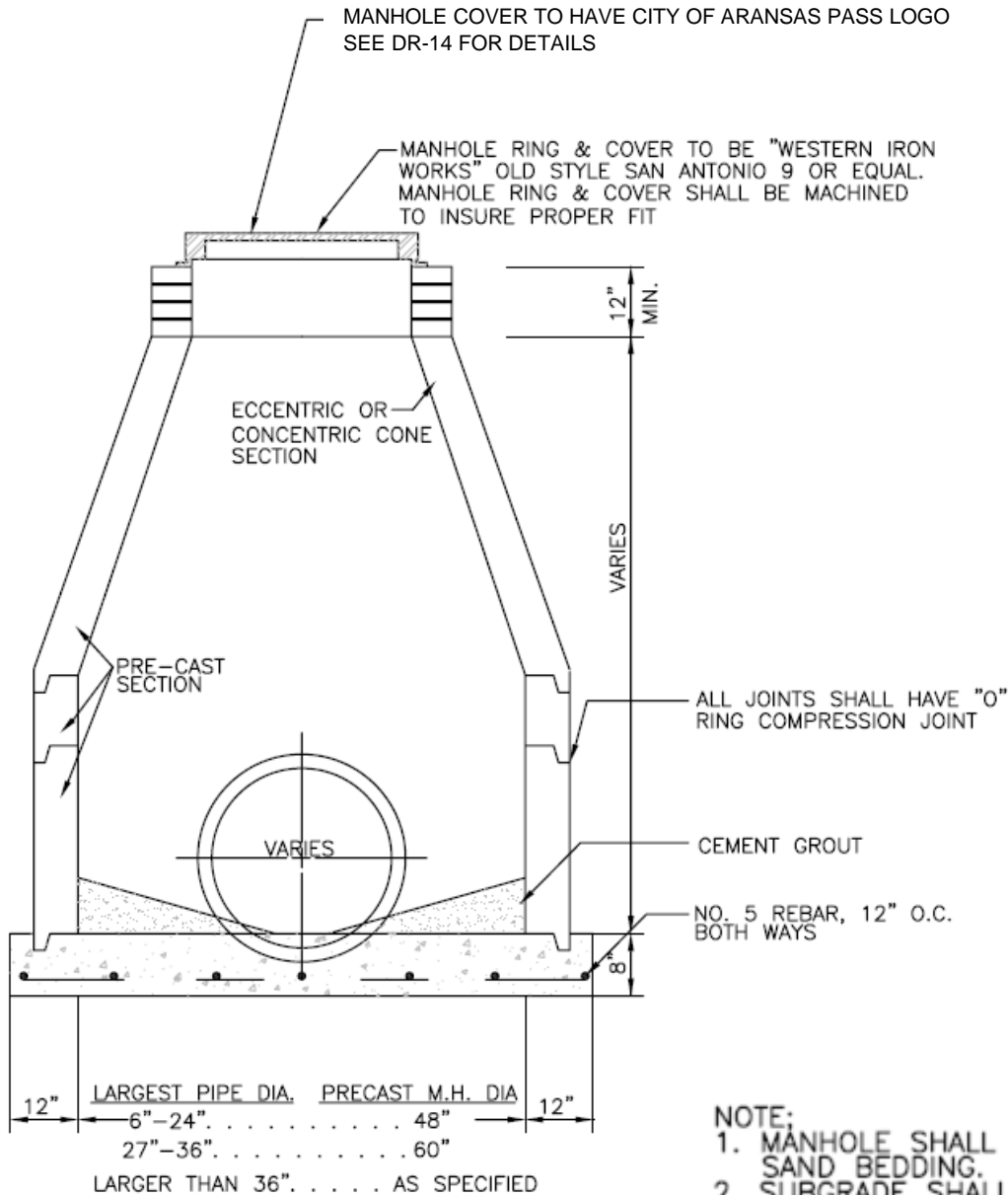
**Aransas Pass, TX 78336**

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### Standards Manual

**Type "C-C" Inlet**

<b>Standard Detail:</b>	<b>DR-05</b>
<b>Date Modified:</b>	<b>7/21/15</b>



- NOTE:
1. MANHOLE SHALL BE PLACED ON 6-INCH SAND BEDDING.
  2. SUBGRADE SHALL BE COMPACTED TO 95% DENSITY
  3. 6" DIAMETER BY 12" CONCRETE COLLAR REQUIRED WHEN INSIDE PAVEMENT

## STANDARD STORM SEWER PRE-CAST CONCRETE MANHOLE



## CITY OF ARANSAS PASS

600 w. Cleveland Blvd.

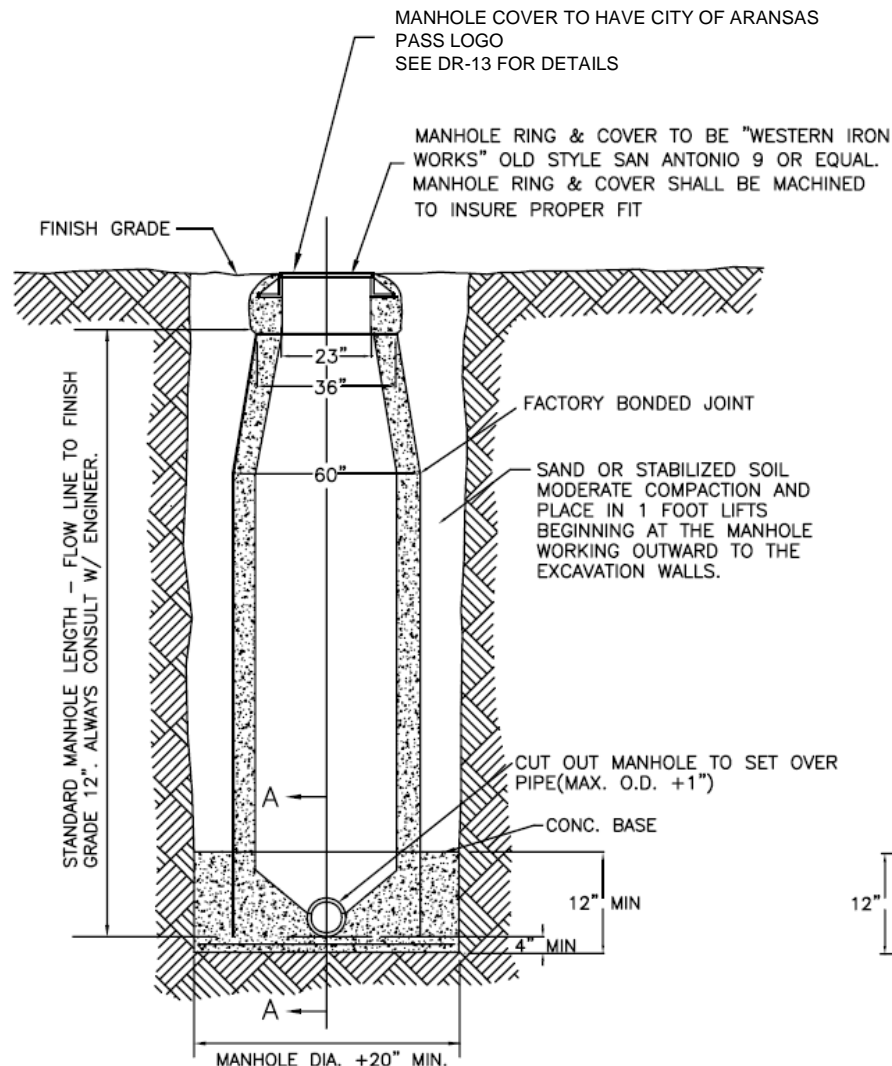
Aransas Pass, TX 78336

Office: (361) 758-5301 Fax: (361) 758-4854

### Standards Manual Pre-Cast Storm Manhole

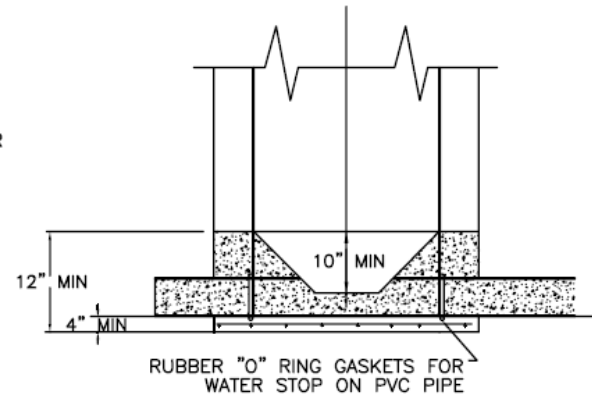
Standard Detail:	DR-06
Date Modified:	7/21/15





#### GENERAL NOTES

1. BEFORE ATTEMPTING TO INSTALL ANY MANHOLE BE SURE EXCAVATION HAS BEEN SHORED OR SLOPED PROPERLY.
2. CONCRETE BASE TO BE POURED IN PLACE IN TRENCH.
3. MANHOLE CUT-OUT TO BE MADE AT TIME OF INSTALLATION.
4. MANHOLE TO BE INSTALLED BY INSERTING INTO WET CONCRETE BASE.
5. FUTURE CONNECTIONS. IF A SEALANT BETWEEN PIPE & MANHOLE IS NEEDED USE STAUFFER CHEMICAL SWS940RTV SILICONE SEALANT OR EQUAL.
6. USE 4'-0" INSIDE DIAMETER (ID) PRECAST SECTION FOR SEWERS WHOSE NOMINAL SIZE IS 24" OR SMALLER.
7. USE 5'-0" ID SECTION FOR SEWER SIZES 30"-36"
8. USE 6'-0" ID SECTIONS FOR SEWERS LARGER THEN 30".
9. MANHOLE SHALL BE PLACED ON 6-INCH SAND BEDDING.
10. SUBGRADE SHALL BE COMPACTED TO 95% DENSITY
11. 6' DIAMETER BY 12" CONCRETE COLLAR REQUIRED WHEN INSIDE PAVEMENT



SECTION "A-A"

### CAST-IN-PLACE 4' DIA. CONCRETE STORM SEWER MANHOLE

NOT TO SCALE



**CITY OF ARANSAS PASS**

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**Aransas Pass, TX 78336**

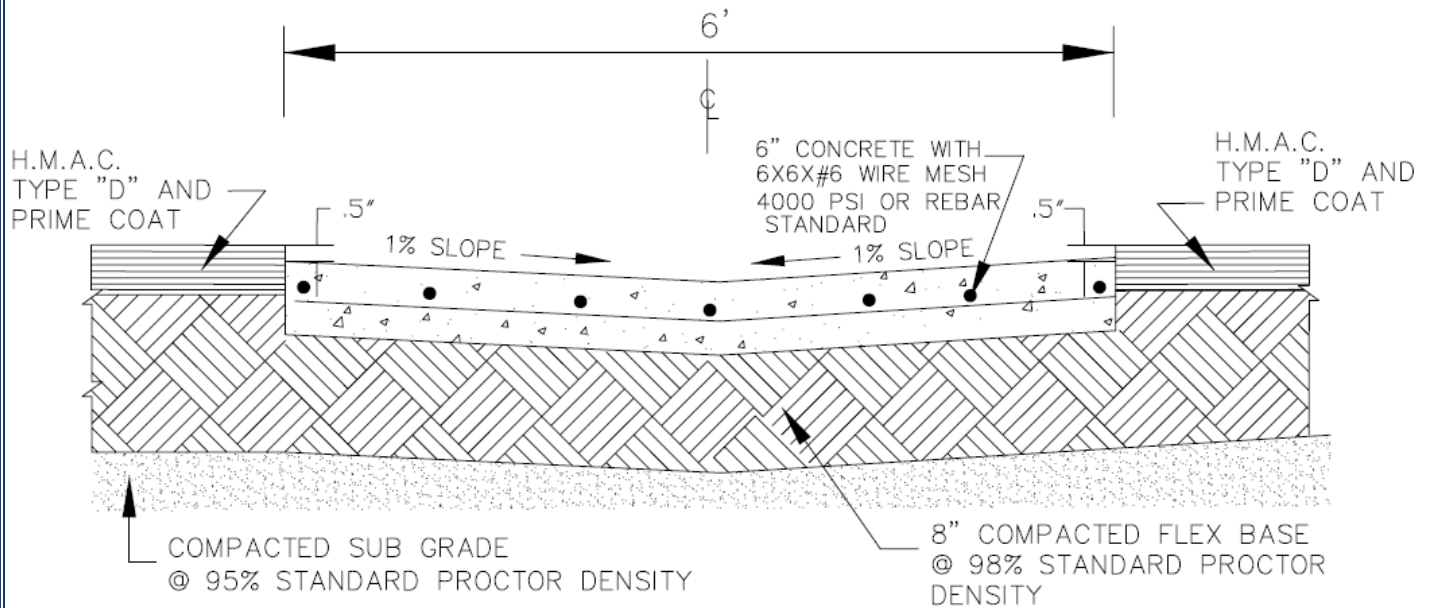
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#### **Standards Manual**

**Cast-In-Place Storm Sewer Manhole**

**Standard Detail: DR-07**

**Date Modified: 7/21/15**



## VALLEY GUTTER

NOTE: NOT TO SCALE



### CITY OF ARANSAS PASS

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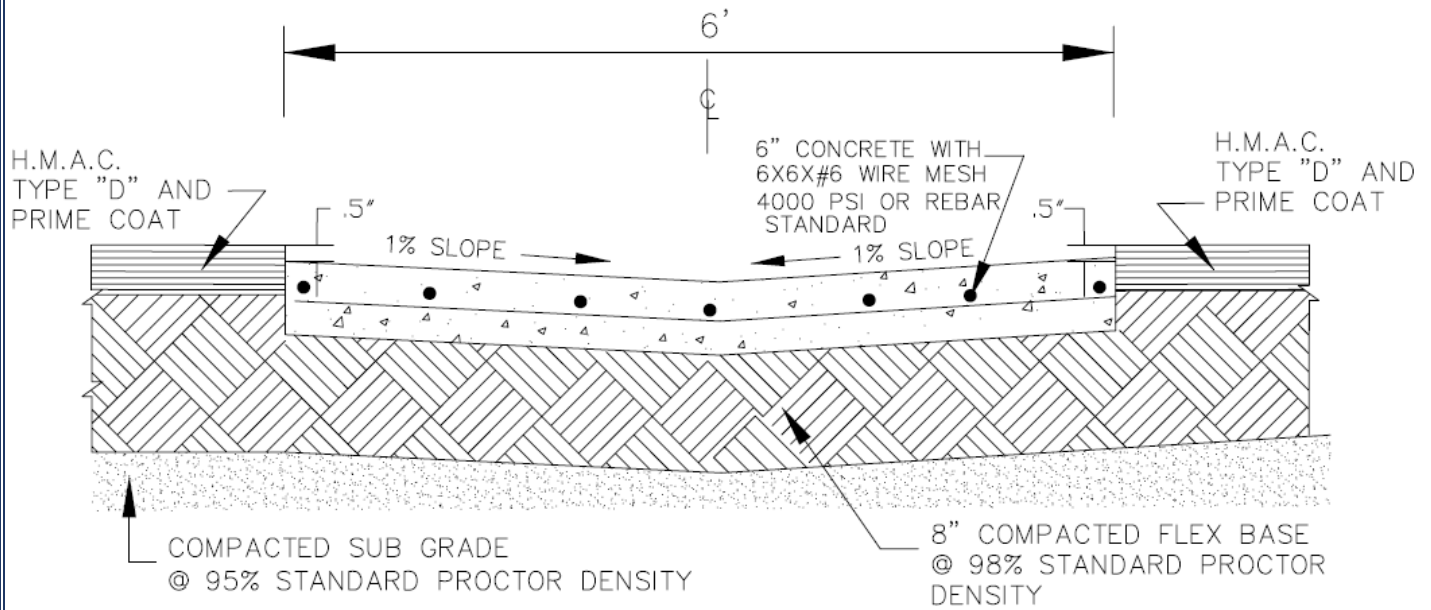
Aransas Pass, TX 78336

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### Standards Manual

Storm Trench Bedding and Backfill Details

Standard Detail:	DR-08
Date Modified:	7/21/15



## VALLEY GUTTER

NOTE: NOT TO SCALE



### CITY OF ARANSAS PASS

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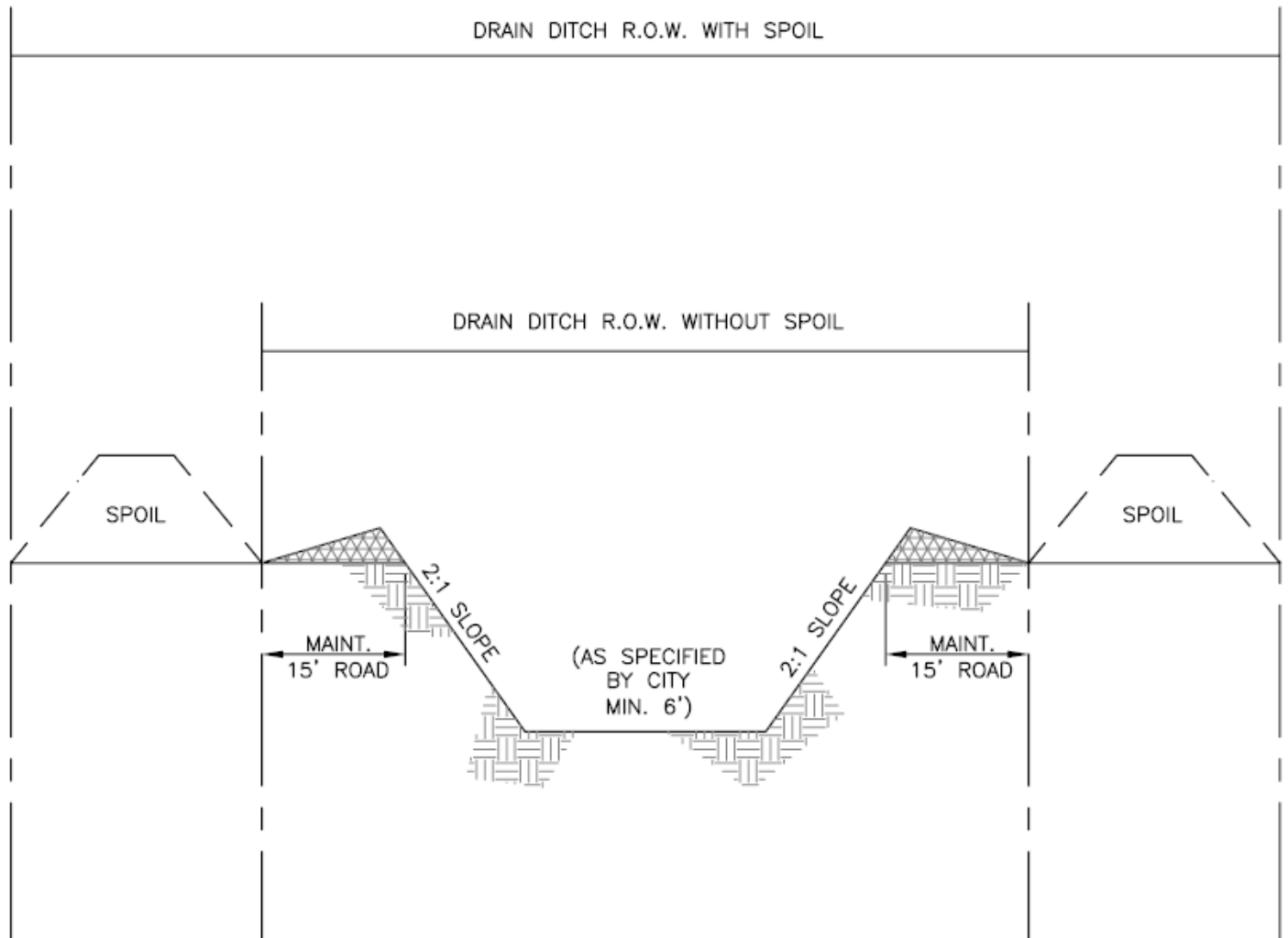
Aransas Pass, TX 78336

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### Standards Manual

#### Valley Gutter Detail

Standard Detail:	DR-09
Date Modified:	7/21/15



NOTE: R.O.W. WIDTH WILL VARY,  
APPROVED WIDTHS SHALL BE  
SPECIFIED BY GOVERNING  
ENTITY I.E. CITY, IRRIGATION  
DISTRICT, DRAINAGE DISTRICT,  
COUNTY PRECINCT, ETC.



## CITY OF ARANSAS PASS

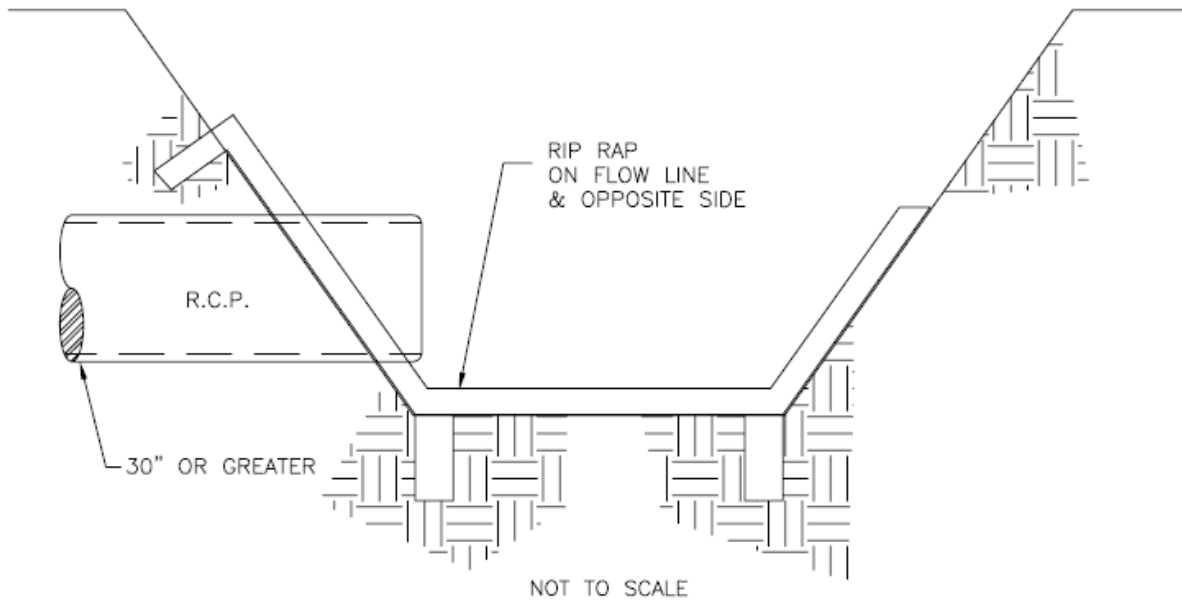
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**Aransas Pass, TX 78336**

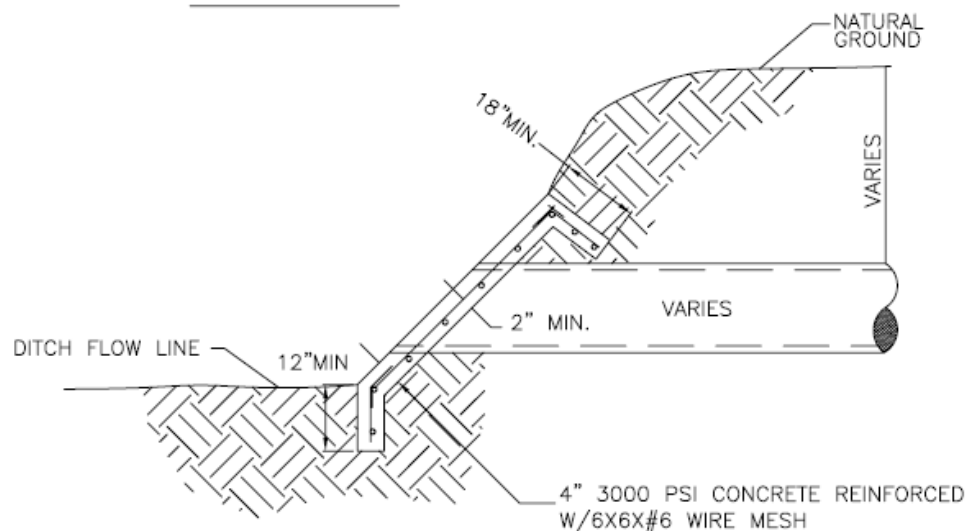
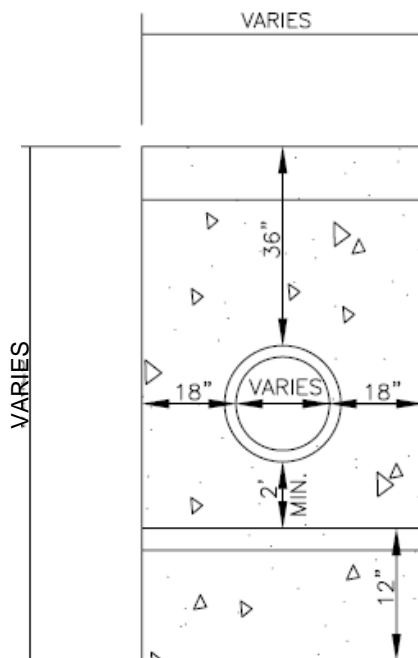
**Office: (361) 758-5301 Fax: (361) 758-4854**

### **Standards Manual** Typical Ditch Cross Section

Standard Detail:	DR-10
Date Modified:	7/20/15



## DETAIL



## CAST-IN-PLACE CONCRETE RIP RAP

NOT TO SCALE



### CITY OF ARANSAS PASS

600 w. Cleveland Blvd.

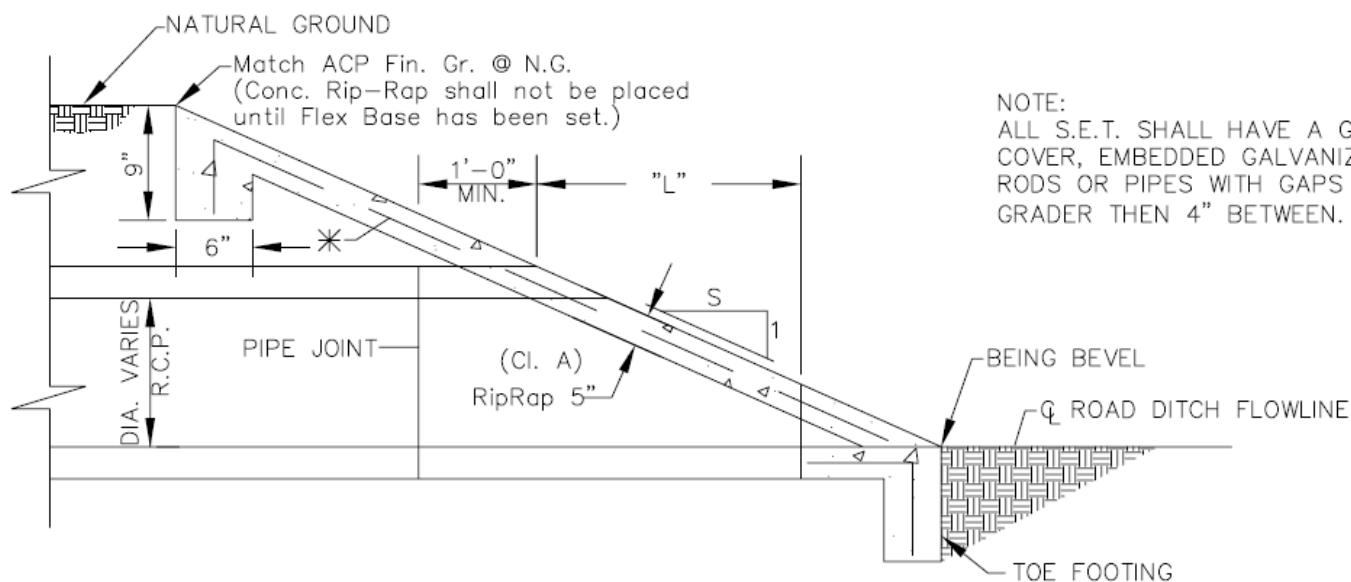
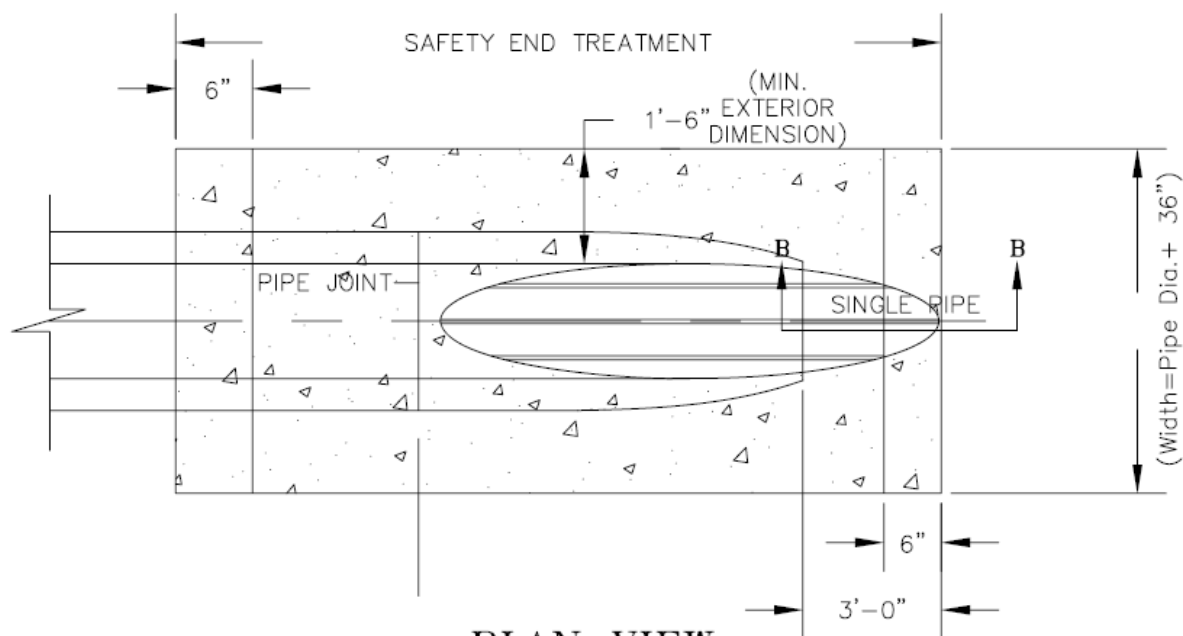
Aransas Pass, TX 78336

Office: (361) 758-5301 Fax: (361) 758-4854

### Standards Manual

#### Cast-In-Place Rip Rap

Standard Detail:	DR-11
Date Modified:	7/20/15



NOTE:  
ALL S.E.T. SHALL HAVE A GRADE COVER, EMBEDDED GALVANIZED RODS OR PIPES WITH GAPS NO GRADER THEN 4" BETWEEN.

NOT TO SCALE



## CITY OF ARANSAS PASS

600 w. Cleveland Blvd.

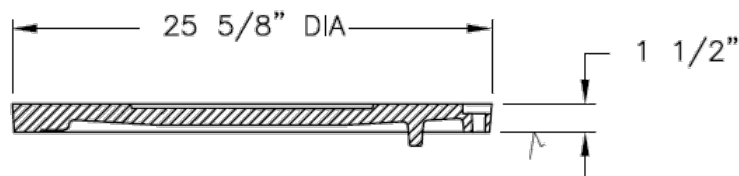
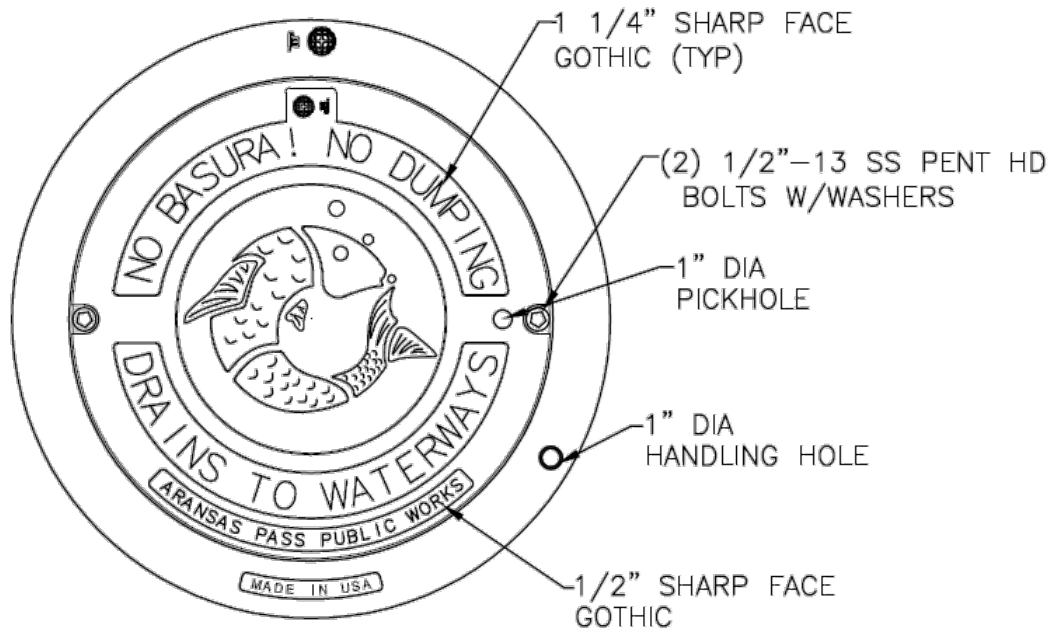
Aransas Pass, TX 78336

Office: (361) 758-5301 Fax: (361) 758-4854

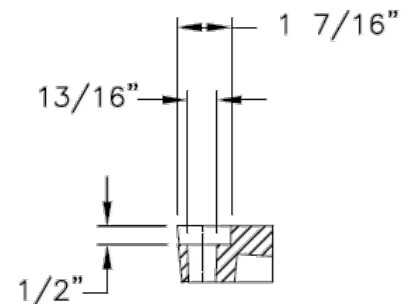
### Standards Manual Safety End Treatment

Standard Detail:	DR-12
Date Modified:	7/20/15

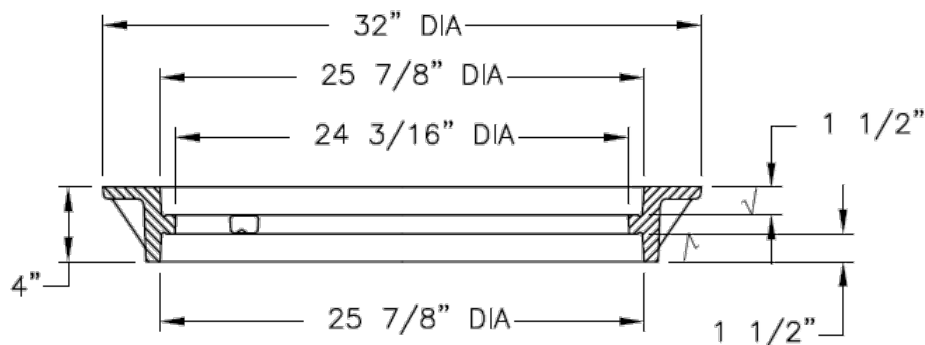




COVER SECTION



BOLTHOLE DETAIL



FRAME SECTION

## **STORM MANHOLE COVER**

NOT TO SCALE



**CITY OF ARANSAS PASS**

**600 w. Cleveland Blvd.**

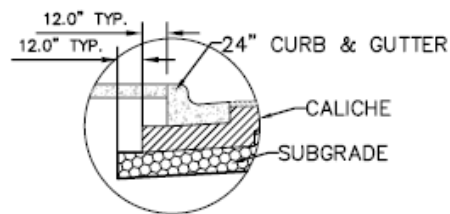
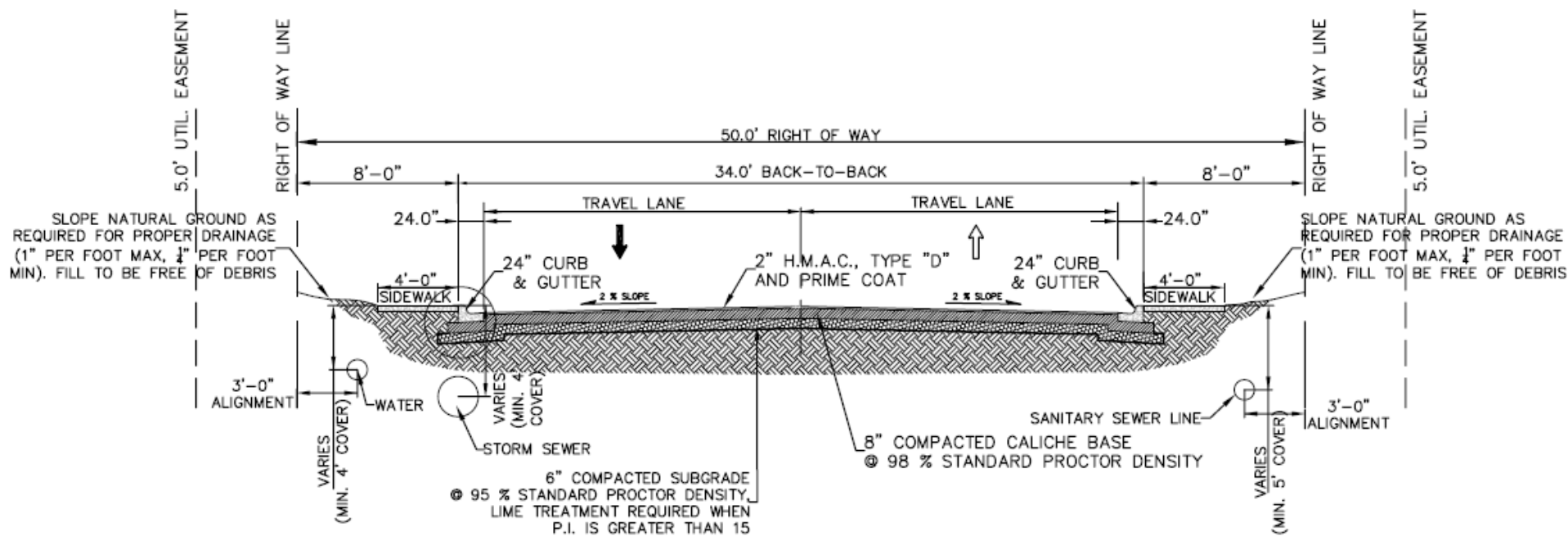
**Aransas Pass, TX 78336**

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### **Standards Manual**

Storm Manhole Cover Details

Standard Detail:	DR-13
Date Modified:	7/20/15



**DETAIL**

N.T.S.

**LOCAL 50.0' (W/ 5.0' U.E.)**

N.T.S.



## CITY OF ARANSAS PASS

**600 w. Cleveland Blvd.**

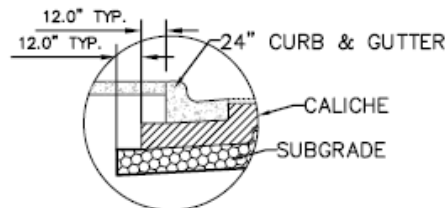
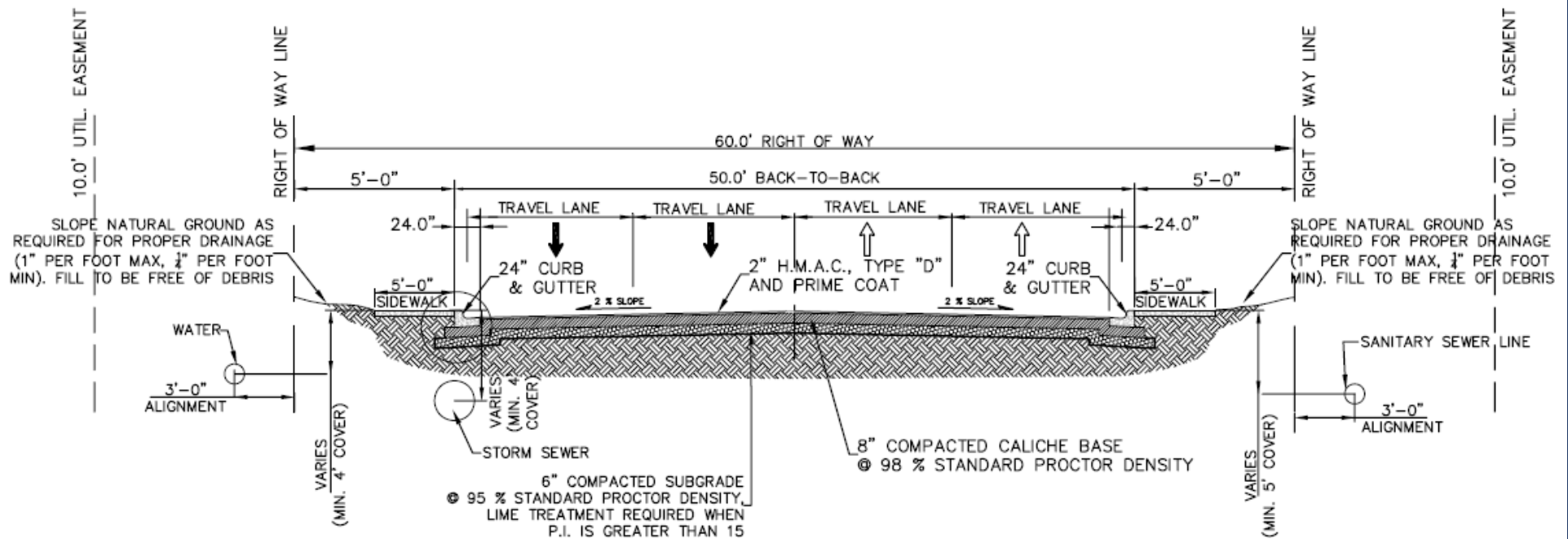
**Aransas Pass, TX 78336**

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### Standards Manual

#### 34' Street Paving Cross-Section

Standard Detail:	STR-01
Date Modified:	7/20/15



**DETAIL**

N.T.S.

**COLLECTOR 60.0' (W/ 10.0' U.E.)**

N.T.S.



**CITY OF ARANSAS PASS**

**600 w. Cleveland Blvd.**

**Aransas Pass, TX 78336**

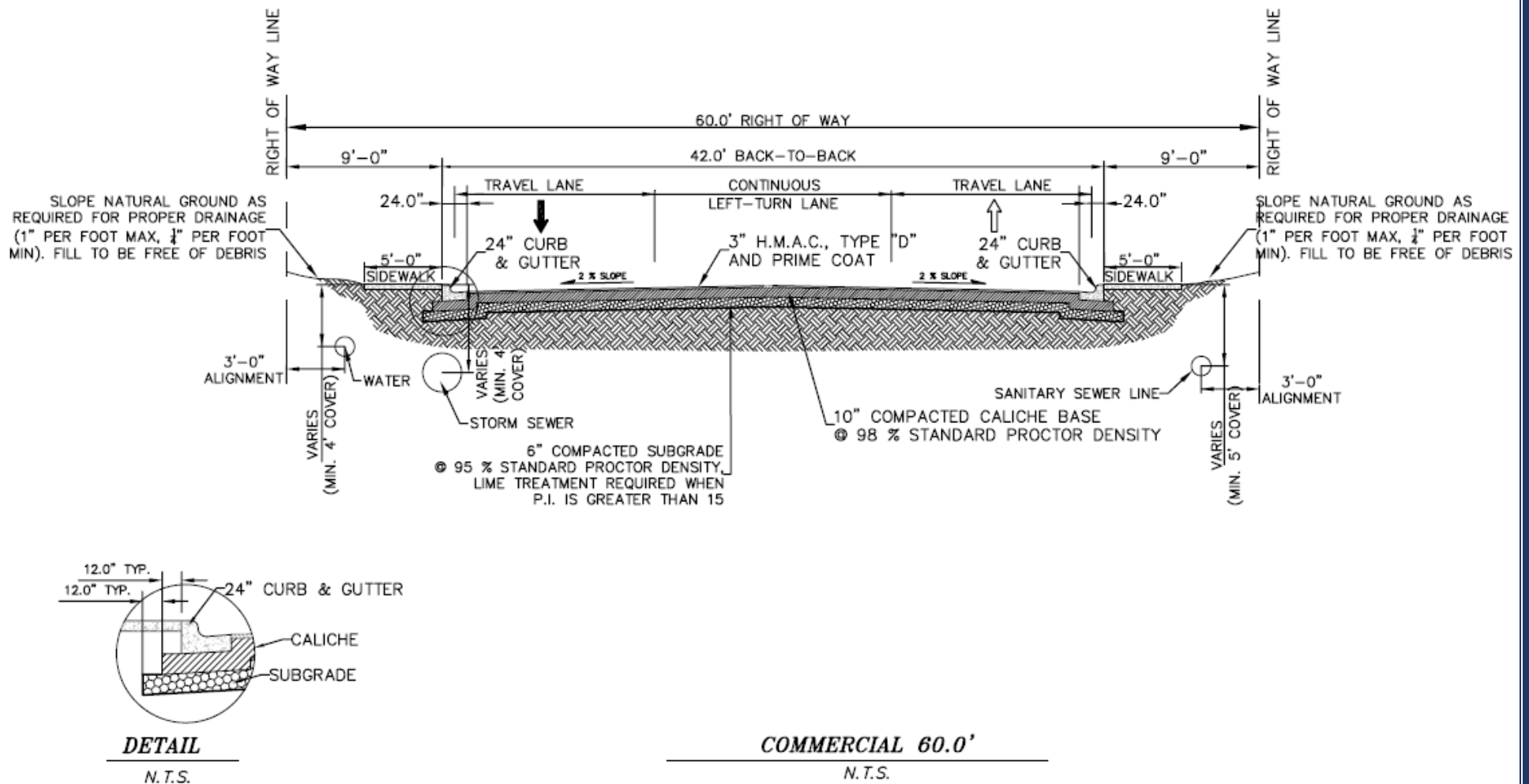
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**Standards Manual**

**50' Street Paving Cross-Section**

**Standard Detail: STR-02**

**Date Modified: 7/20/15**



## CITY OF ARANSAS PASS

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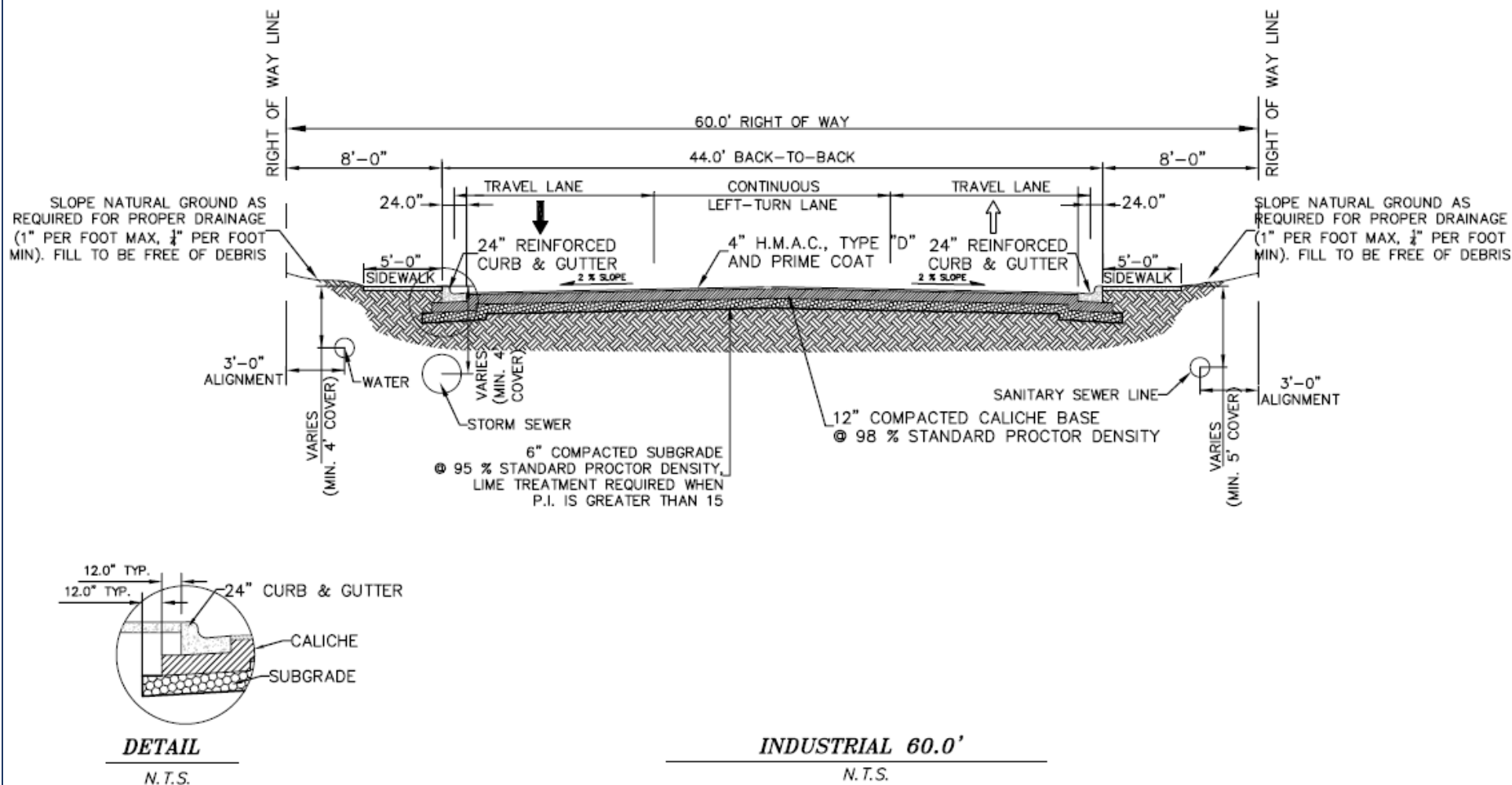
Aransas Pass, TX 78336

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### Standards Manual

#### 42' Street Paving Cross-Section

Standard Detail:	STR-03
Date Modified:	7/20/15



## CITY OF ARANSAS PASS

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### Standards Manual

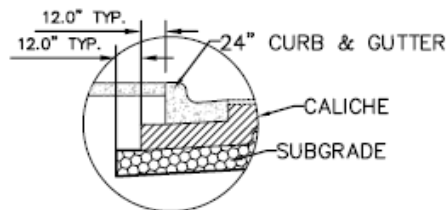
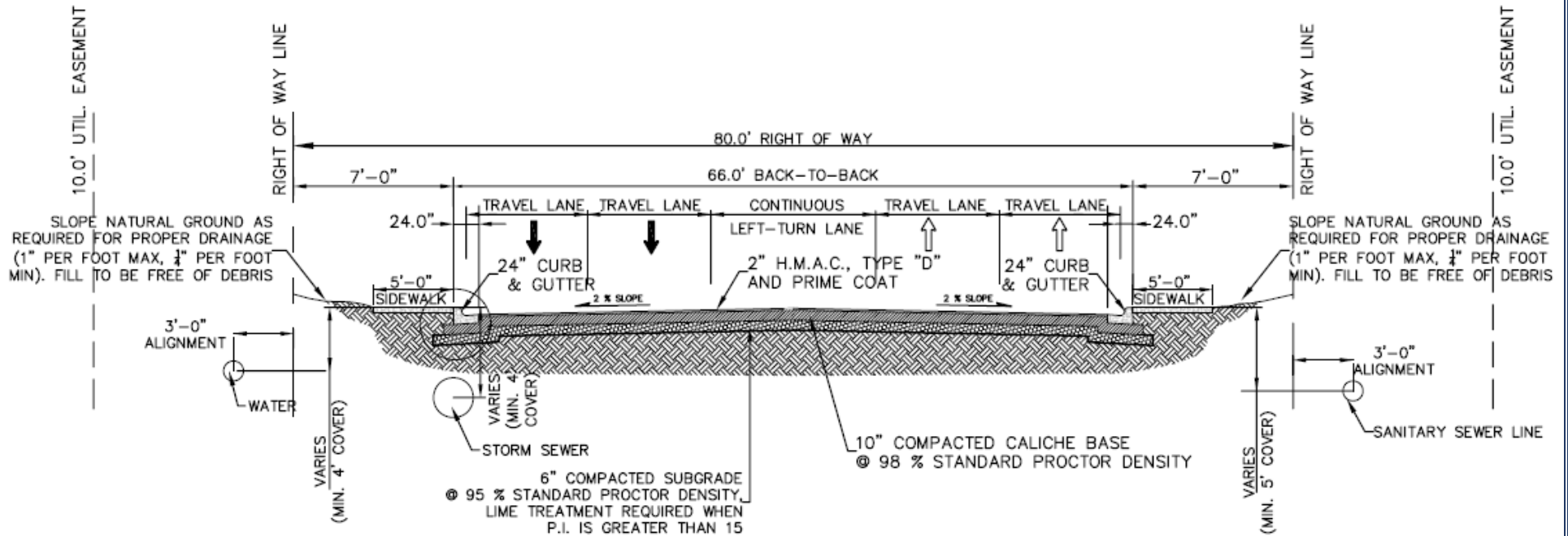
#### 44' Street Paving Cross-Section

Standard Detail:	STR-04
Date Modified:	7/20/15









**DETAIL**

N.T.S.

**MAJOR ARTERIAL 80.0' (W/ 10' U.E.)**

N.T.S.



## CITY OF ARANSAS PASS

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Aransas Pass, TX 78336

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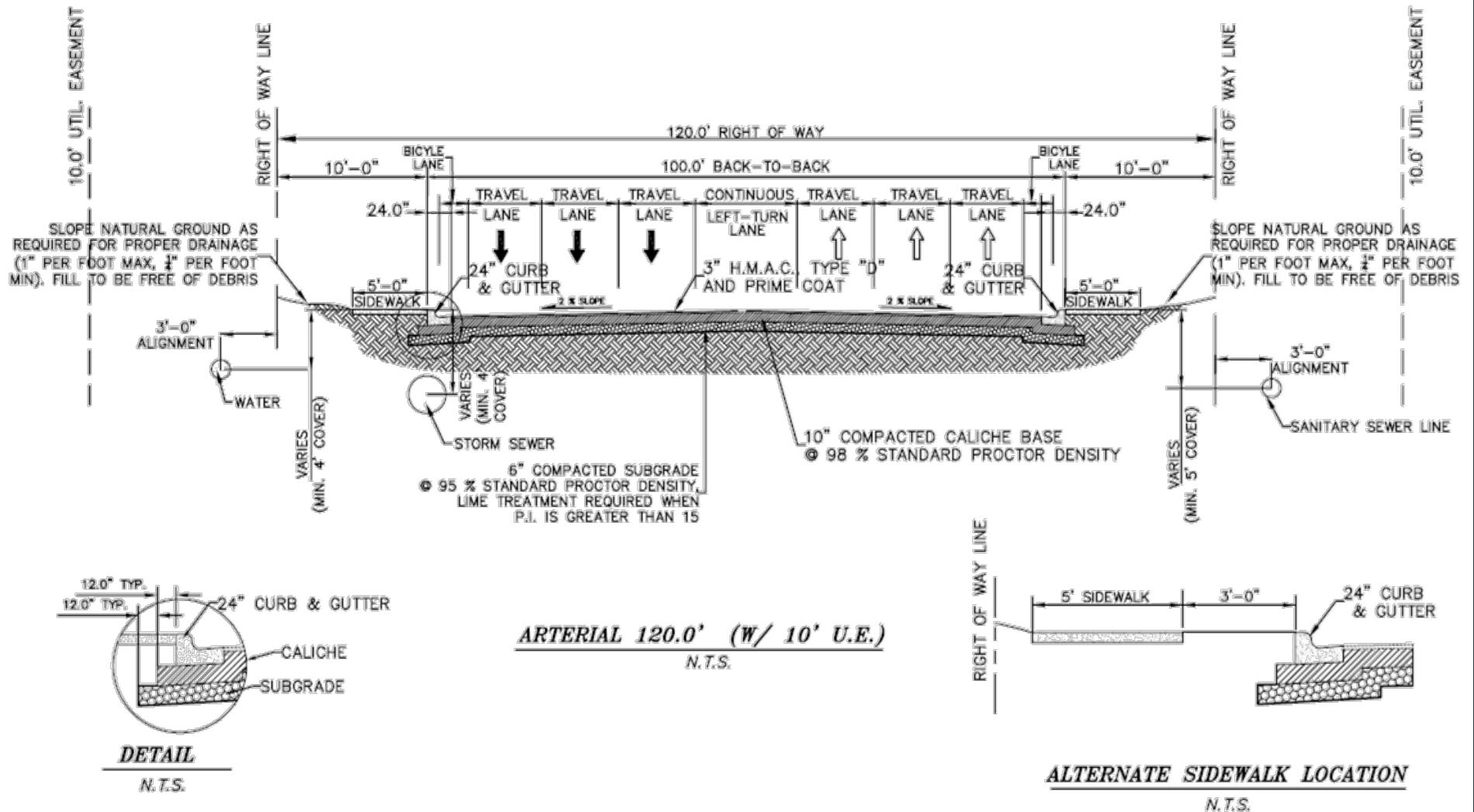
### Standards Manual

66' Street Paving Cross-Section

Standard Detail: STR-06

Date Modified: 7/20/15





## CITY OF ARANSAS PASS

600 w. Cleveland Blvd.

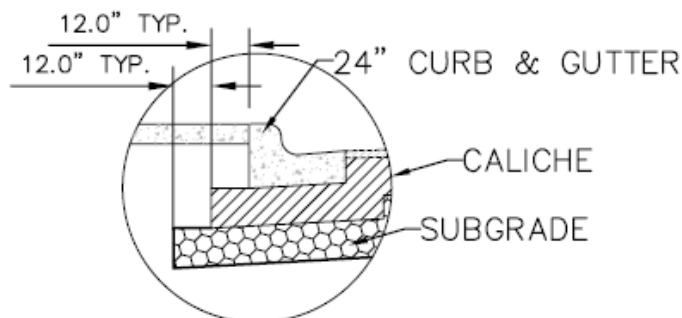
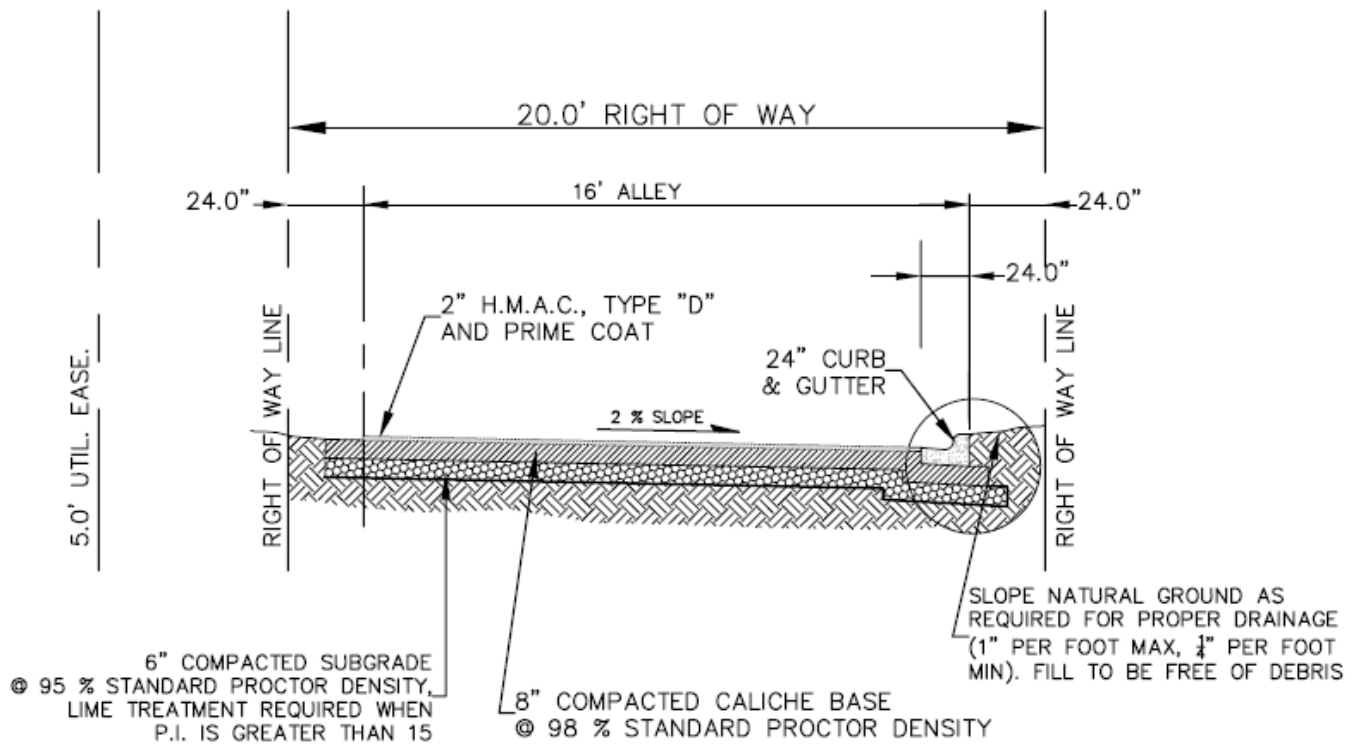
Aransas Pass, TX 78336

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### Standards Manual

100' Street Paving Cross-Section

Standard Detail:	STR-08
Date Modified:	7/20/15



**DETAIL**

**N.T.S.**

**ALLEY 20.0' R.O.W. (W/ 5' U.E.)**

NOT TO SCALE



## CITY OF ARANSAS PASS

**600 w. Cleveland Blvd.**

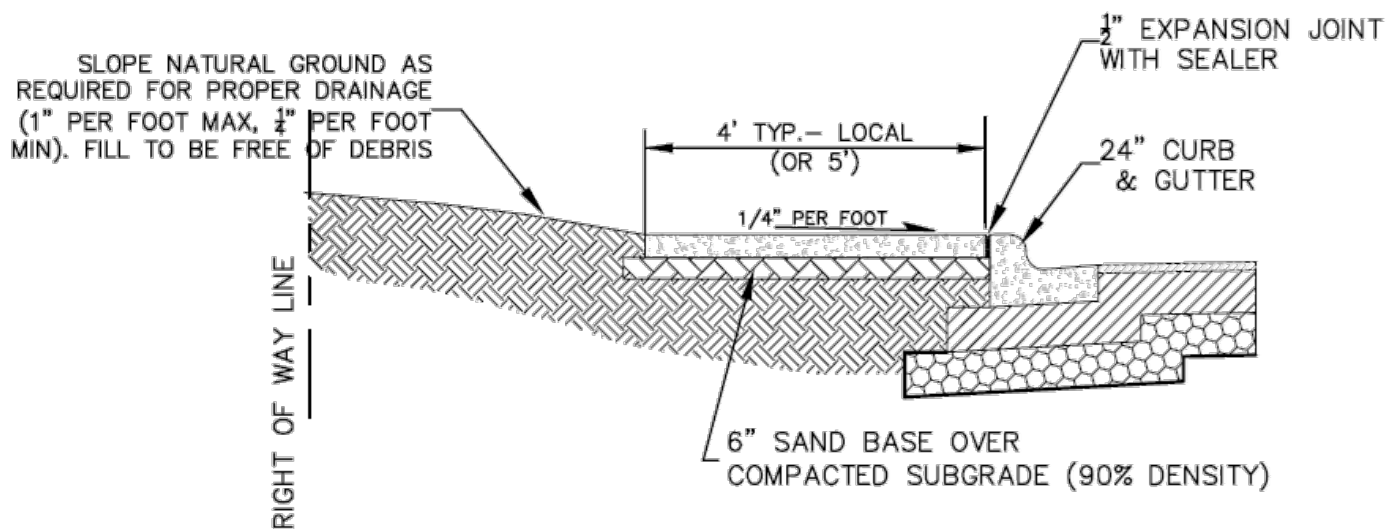
**Aransas Pass, TX 78336**

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### Standards Manual

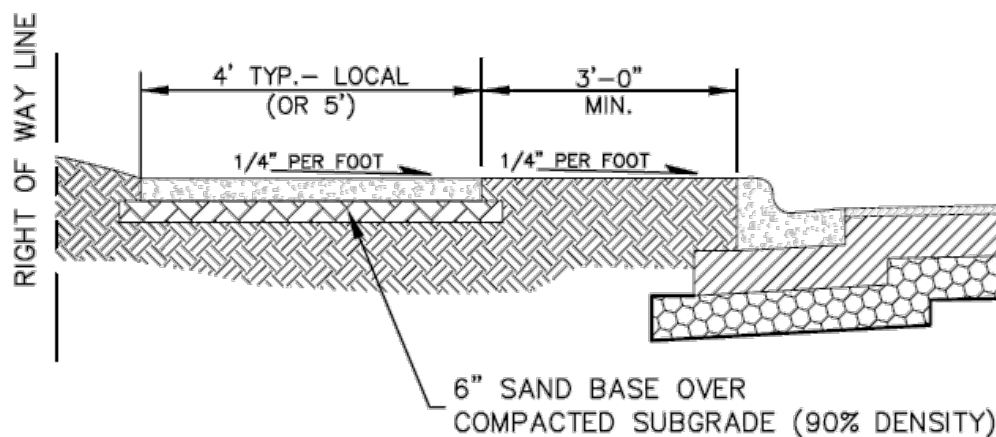
**16' Alley Paving Cross-Section**

Standard Detail:	STR-09
Date Modified:	7/20/15



### SIDEWALK ALONG CURB & GUTTER

N.T.S.



### ALTERNATE SIDEWALK LOCATION

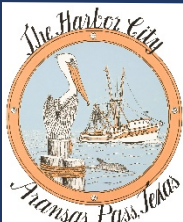
N.T.S.

#### GENERAL NOTES:

1. 4" CONCRETE SIDEWALK WITH 6X6X #6 WIRE MESH.
2. EXPANSION JOINTS AT 70' SPACING & AT ABUTTING STRUCTURES.
3. ALTERNATE LOCATION APPROVED ONLY WHEN UTILITIES ARE NOT UNDER THE SIDEWALK.

### TYPICAL SIDEWALK LOCATIONS

NOT TO SCALE



## CITY OF ARANSAS PASS

**600 w. Cleveland Blvd.**

**Aransas Pass, TX 78336**

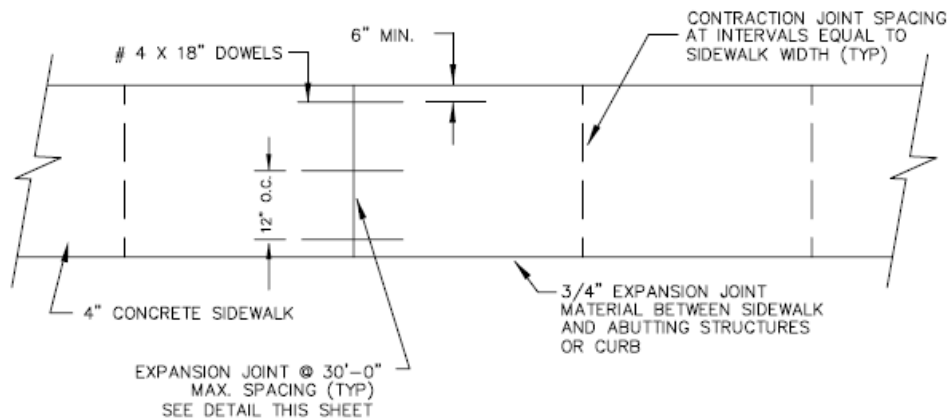
**Office: (361) 758-5301 Fax: (361) 758-4854**

### **Standards Manual**

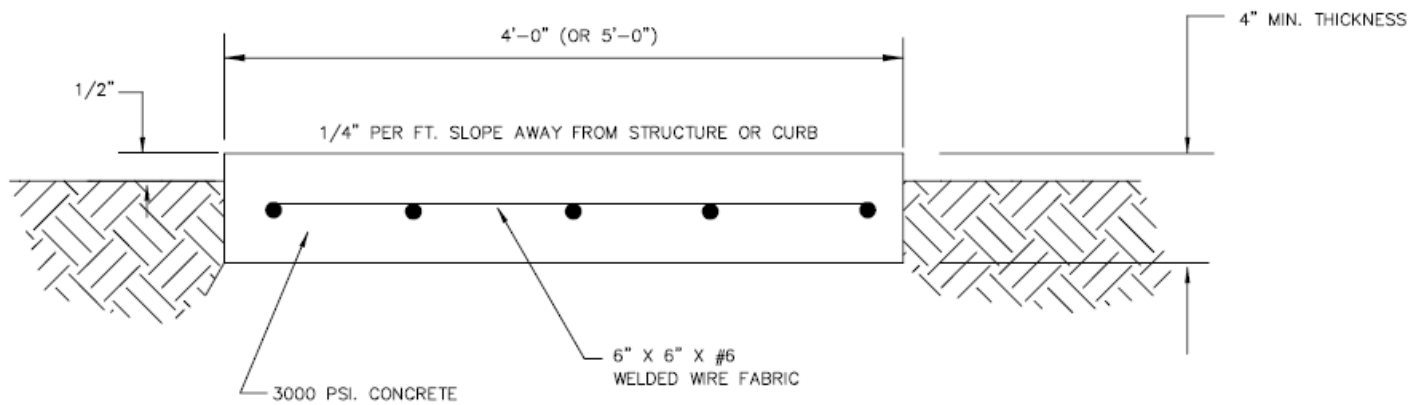
#### **Typical Sidewalk Detail**

Standard Detail:	STR-10
Date Modified:	7/20/15





SIDEWALK PLAN



SIDEWALK SECTION

TYPICAL SIDEWALK DETAIL  
NOT TO SCALE



## CITY OF ARANSAS PASS

**600 w. Cleveland Blvd.**

**Aransas Pass, TX 78336**

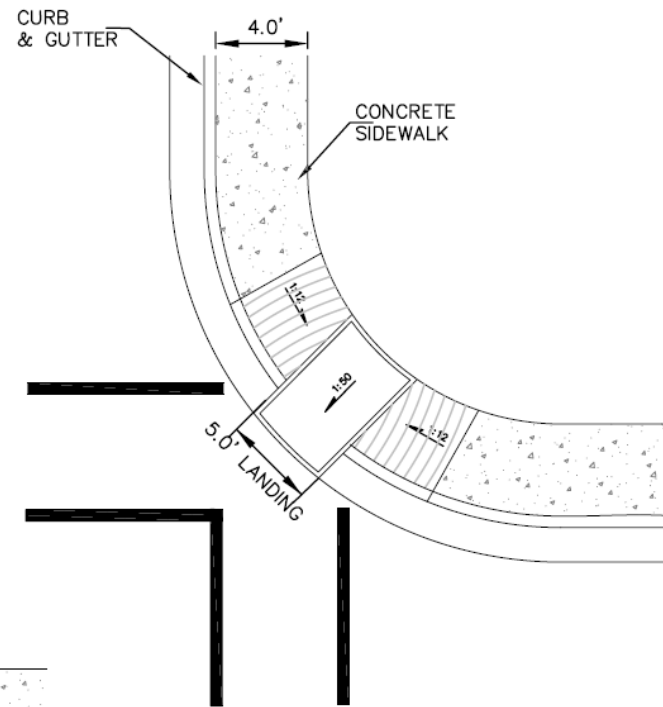
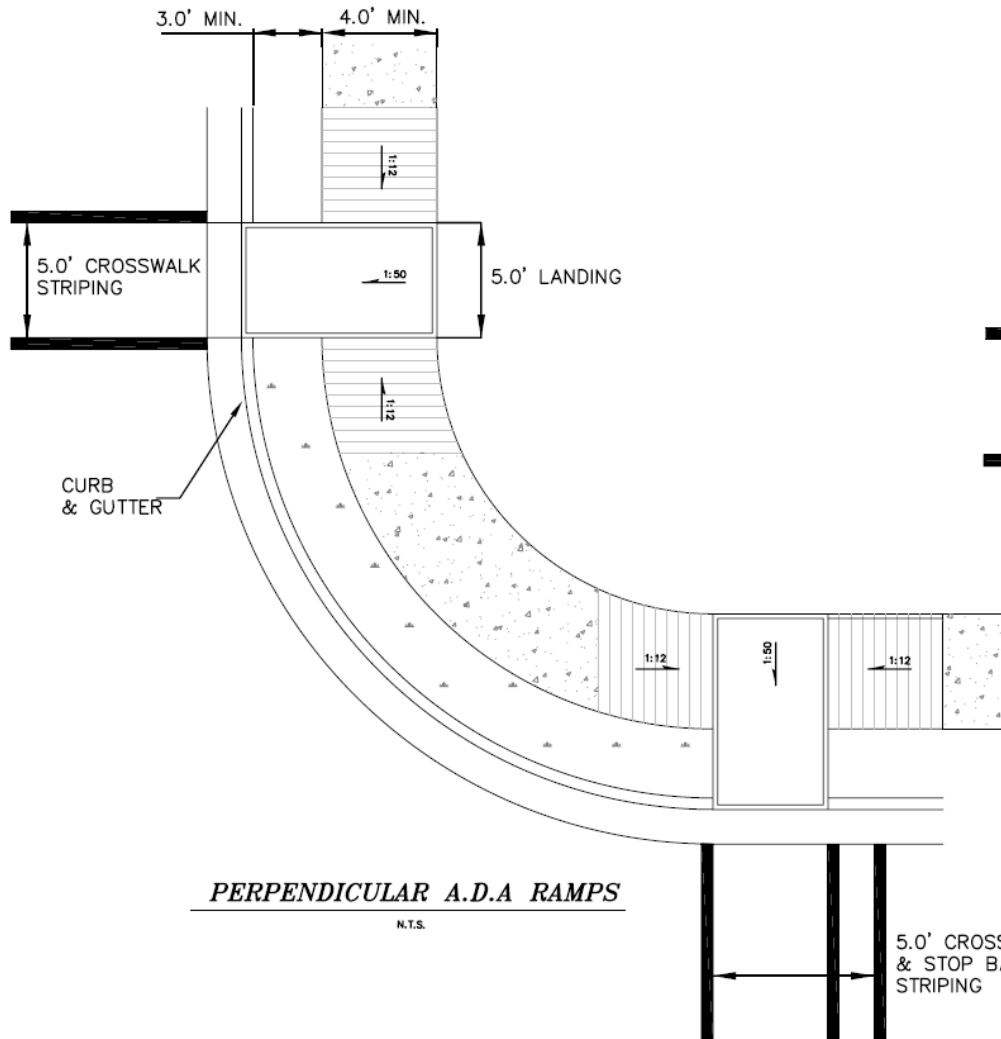
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### **Standards Manual** **Typical Sidewalk Detail**

<b>Standard Detail:</b>	<b>STR-11</b>
<b>Date Modified:</b>	<b>7/20/15</b>



NOTE;  
RAMPS SHALL BE PAINTED  
"SAFETY RED"



## CITY OF ARANSAS PASS

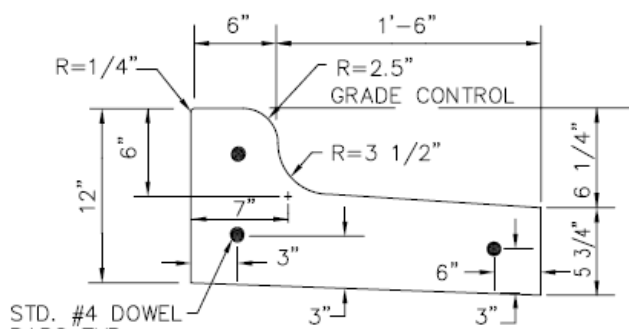
600 w. Cleveland Blvd.

Aransas Pass, TX 78336

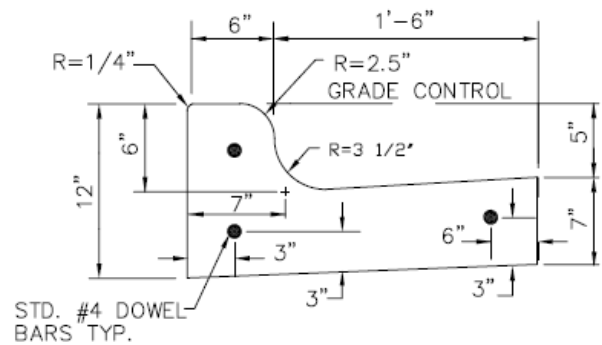
Office: (361) 758-5301 Fax: (361) 758-4854

## Standards Manual ADA Ramp Detail

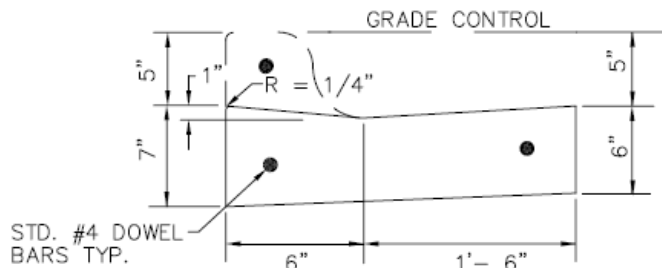
Standard Detail:	STR-12
Date Modified:	6/24/15



**SPILL CURB & GUTTER**



**CATCH CURB & GUTTER**



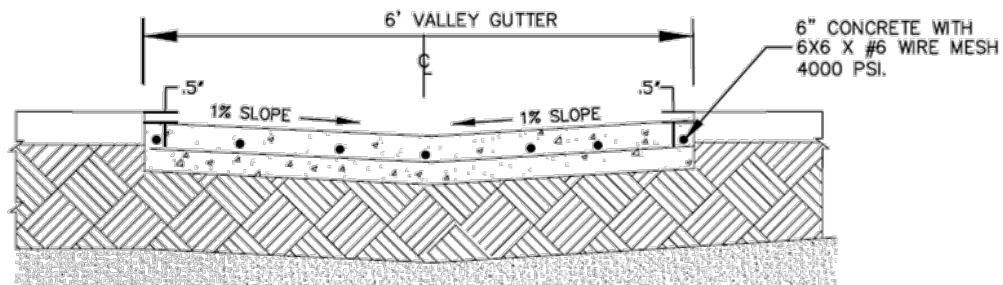
**LAY-DOWN CURB & GUTTER**

**NOTES:**

1. 1/2" PREFORMED EXPANSION JOINTS SHALL BE PLACED ON 70' CENTERS. DUMMY JOINTS SHALL BE PLACED AT 10' SPACING, CENTERED FROM EACH EXPANSION JOINT.
2. TACK COAT SHALL BE APPLIED TO ANY SURFACE OF CONCRETE IN CONTACT WITH ASPHALT.
3. 3000 PSI CONCRETE SHALL BE USED.

**CURB & GUTTER DETAILS**

N.T.S.



**VALLEY GUTTER DETAIL**

N.T.S.

**NOTES:**

1. 1/2" PREFORMED EXPANSION JOINTS SHALL BE PLACED ON 70' CENTERS. DUMMY JOINTS SHALL BE PLACED AT 10' SPACING, CENTERED FROM EACH EXPANSION JOINT.
2. TACK COAT SHALL BE APPLIED TO ANY SURFACE OF CONCRETE IN CONTACT WITH ASPHALT.
3. 4000 PSI CONCRETE SHALL BE USED.



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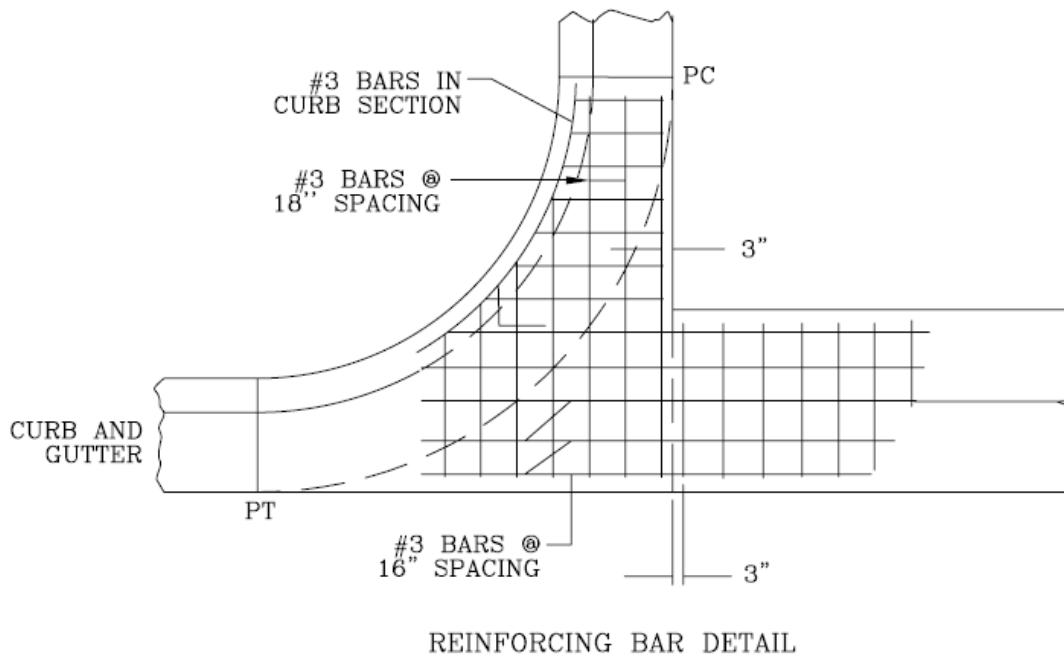
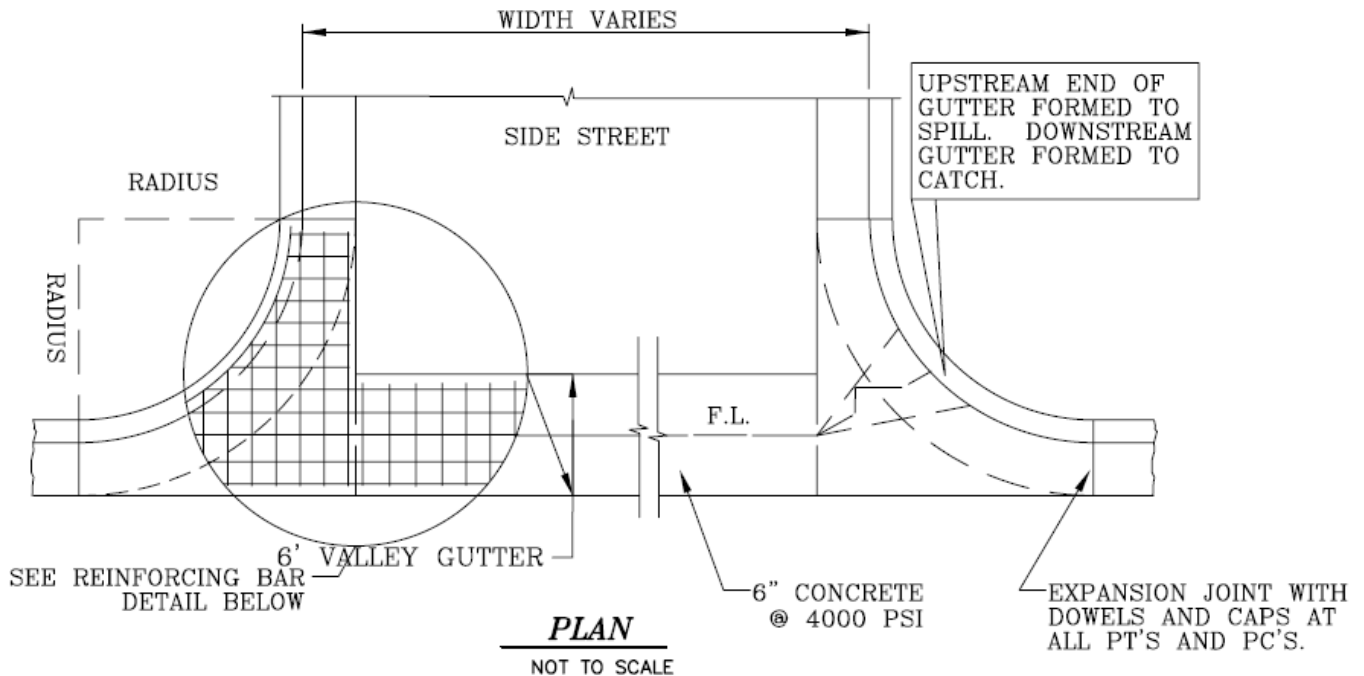
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**Standards Manual**

**Curb & Gutter and Valley Gutter Detail**

Standard Detail:	STR-13
Date Modified:	7/17/15



## CONCRETE VALLEY GUTTER

NOT TO SCALE



**CITY OF ARANSAS PASS**

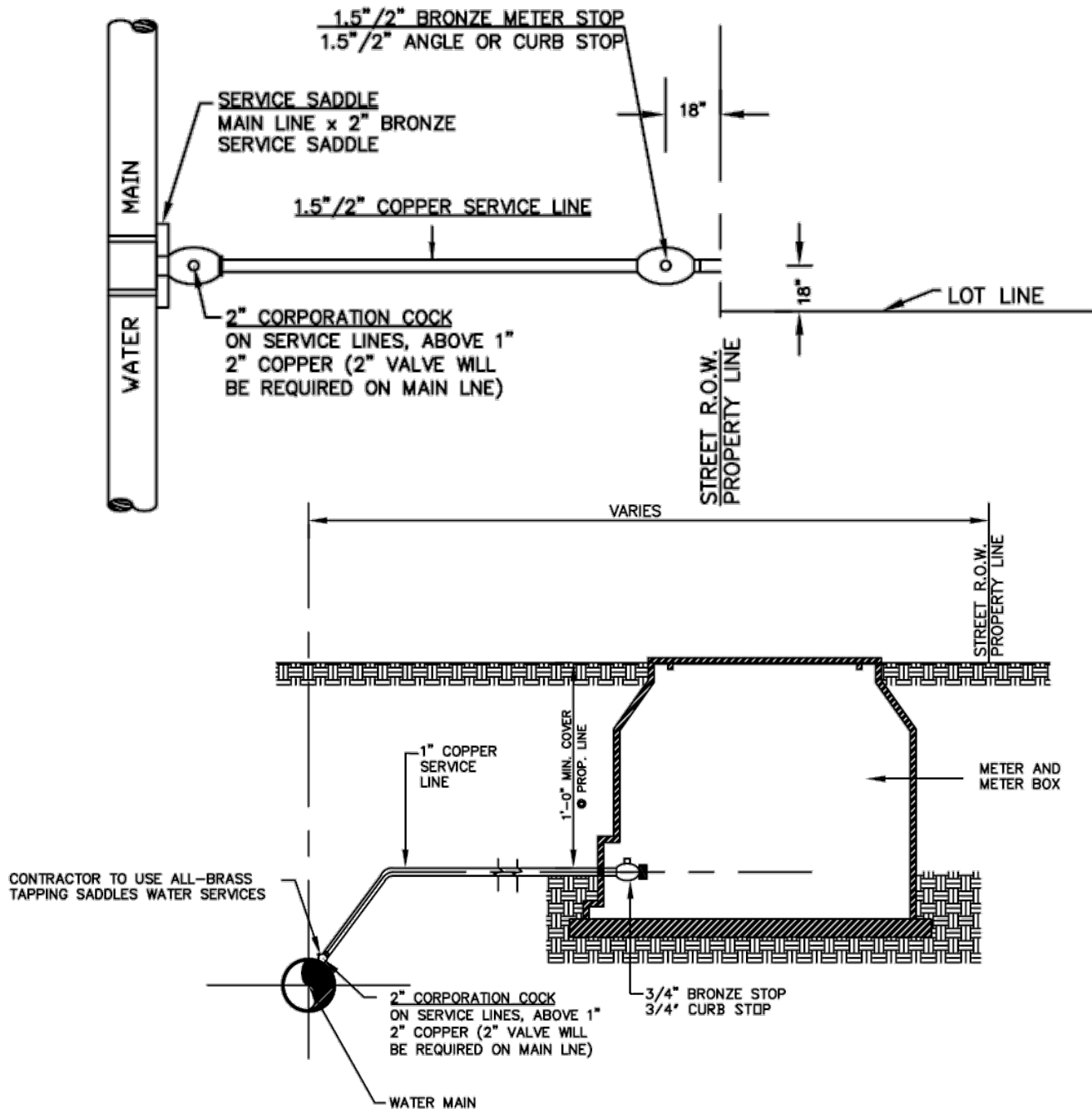
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**Standards Manual**  
**Concrete Valley Gutter**

Standard Detail:	STR-14
Date Modified:	7/17/15



### SINGLE WATER SERVICE CONNECTION

NOT TO SCALE

NOTE:  
1. CASING REQUIRED ON ALL SERVICES  
EXTENDING ACROSS RIGHT-OF-WAY.  
2. FOR METER SIZES SEE SECTION IV.



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### **Standards Manual**

#### **Single Water Service Connection**

Standard Detail:	WTR-1
Date Modified:	7/17/15

TOP OF CURB (TO TOP OF FLANGE).

FIRE HYDRANT TO BE SET PLUMB

3'-0"

FIRE HYDRANT (MUELLER, AMERICAN DARLING AND KENEDY—PAINTED CAUTION YELLOW)

EXTENSION (ONLY WHEN REQUIRED)

PROP. 12" OF PEA GRAVEL

4'-0" MIN.

NOTE: DRAIN HOLES MUST NOT BE PLUGGED

6" GATE VALVE W/ VALVE BOX (SEE VALVE INSTALLATION DETAIL WTR-3)

12" MIN.

12" MIN.

6" PIPE

3'-0" NORMALLY (SEE PLANS)

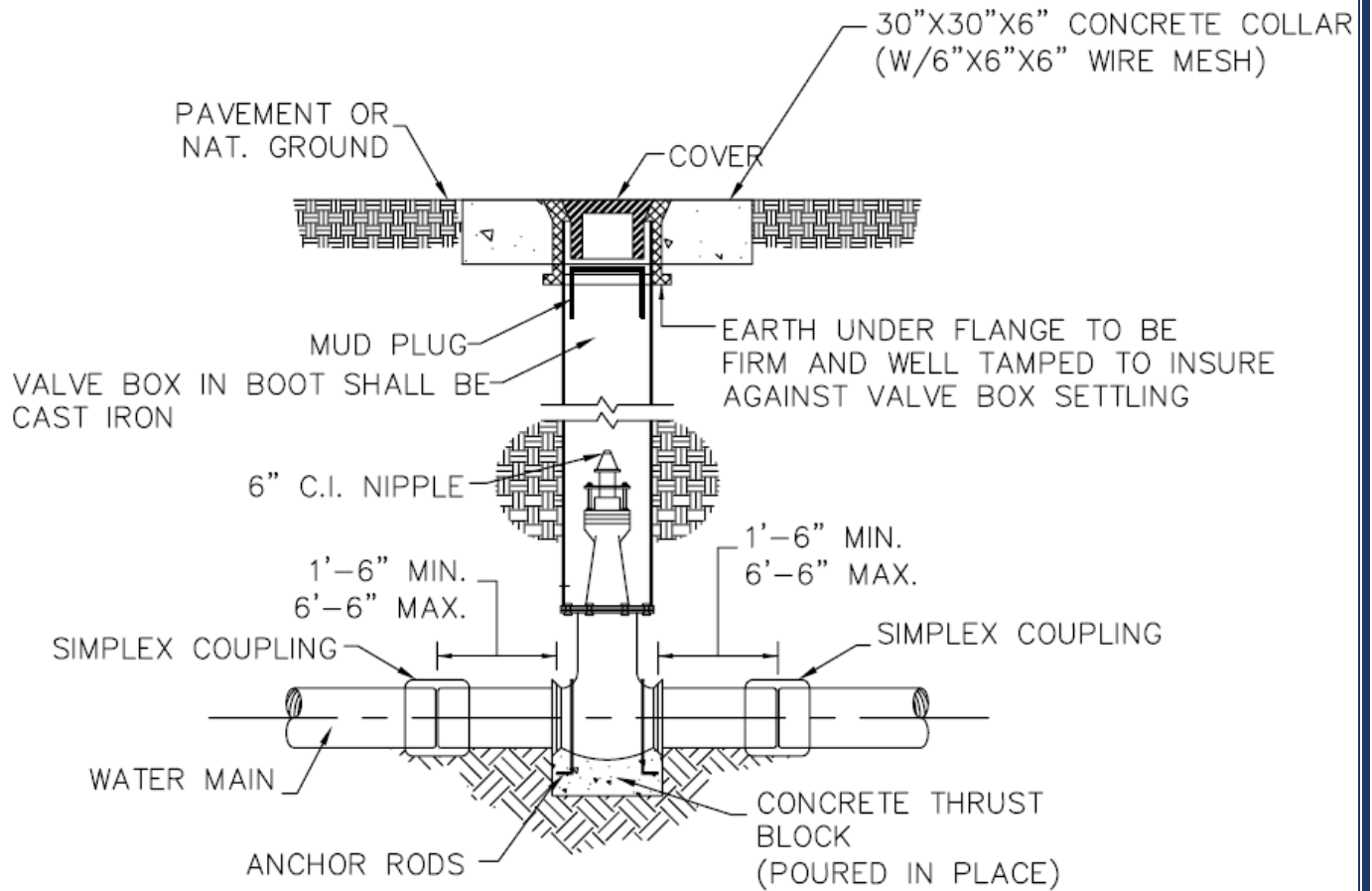
WATER MAIN

CONCRETE THRUST BLOCK (POURED IN PLACE)

**Office: (361) 758-5301      Fax: (361) 758-4854**

### Fire Hydrant Installation Detail

<b>Standard Detail:</b>	<b>WTR-2</b>
<b>Date Modified:</b>	<b>7/17/15</b>



## VALVE & VALVE BOX INSTALLATION

NOT TO SCALE



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### **Standards Manual**

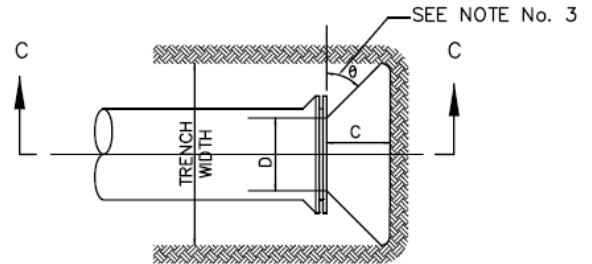
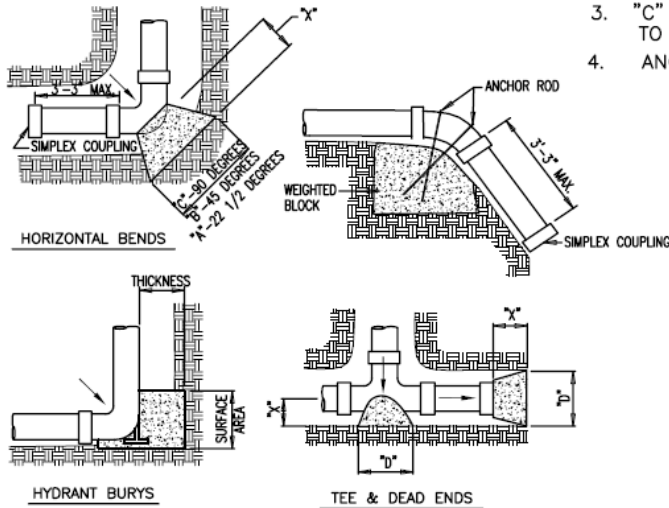
**Valve & Valve Box Installation**

Standard Detail:	WTR-3
Date Modified:	7/17/15



#### GENERAL NOTES:

1. THE LOCATION OF THRUST BLOCKS DEPENDS UPON THE DIRECTION OF THRUST AND TYPE OF FITTINGS.
2. THRUST BLOCK CALCULATIONS ARE BASED ON A WATER LINE PRESSURE OF 150 P.S.I. AND AN ALLOWABLE SOIL BEARING VALUE OF 2,500 POUNDS PER SQUARE FOOT.
3. "C" DIMENSIONS SHALL BE LARGE ENOUGH TO MAKE ANGLE  $\theta$  EQUAL TO LARGER THAN 45°.
4. ANGLE  $\theta$  SHALL BE EQUAL TO OR LARGER THAN 45°.



CAP ON SPIGOT END  
PLUG ON BELL END  
(PLUG SHOWN)

PLAN

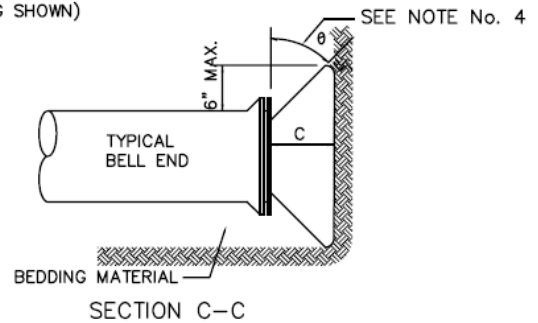


TABLE OF CASING SIZES

NOMINAL PIPE SIZE	CASING SIZE (INSIDE DIA.)	CASING MINIMUM WALL THICKNESS
16"	24"	0.25"

HORIZONTAL BLOCKING TABLE									
PIPE SIZE	"X"—"Y" DIM. FT.	22 1/2 DEGREES		45 DEGREES		90 DEGREES		TEE & PLUG	
		"A"	MIN. AREA	"B"	MIN. AREA	"C"	MIN. AREA	"D"	MIN. AREA
4"	1.50	1.00	1.00	1.00	1.00	1.00	1.06	1.00	1.06
6"	1.50	1.00	1.00	1.14	1.30	1.55	2.40	1.30	1.70
8"	1.50	1.08	1.18	1.52	2.31	2.07	4.27	1.74	3.02
10"	1.50	1.35	1.84	1.90	3.61	2.58	6.66	2.17	4.71
12"	1.50	1.63	2.65	1.86	5.19	3.10	9.60	2.61	6.79

## THRUST BLOCK DETAILS

NOT TO SCALE



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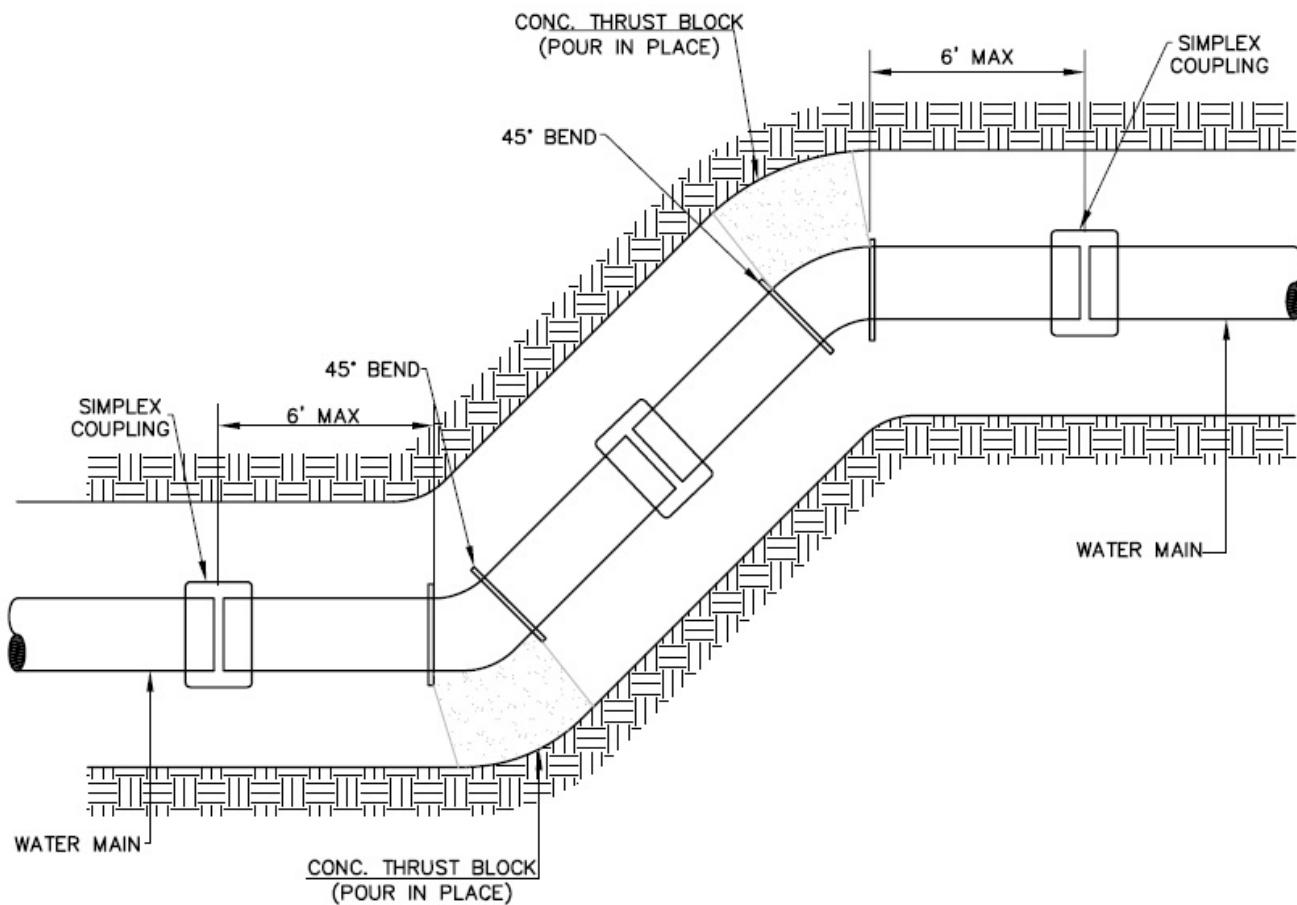
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**Standards Manual**

**Thrust Block Details**

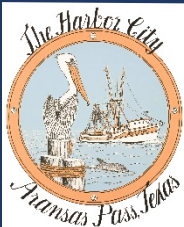
Standard Detail:	WTR-4
Date Modified:	7/17/15



NOTE: NOT TO SCALE

## WATERLINE OFFSET DETAIL

NOT TO SCALE



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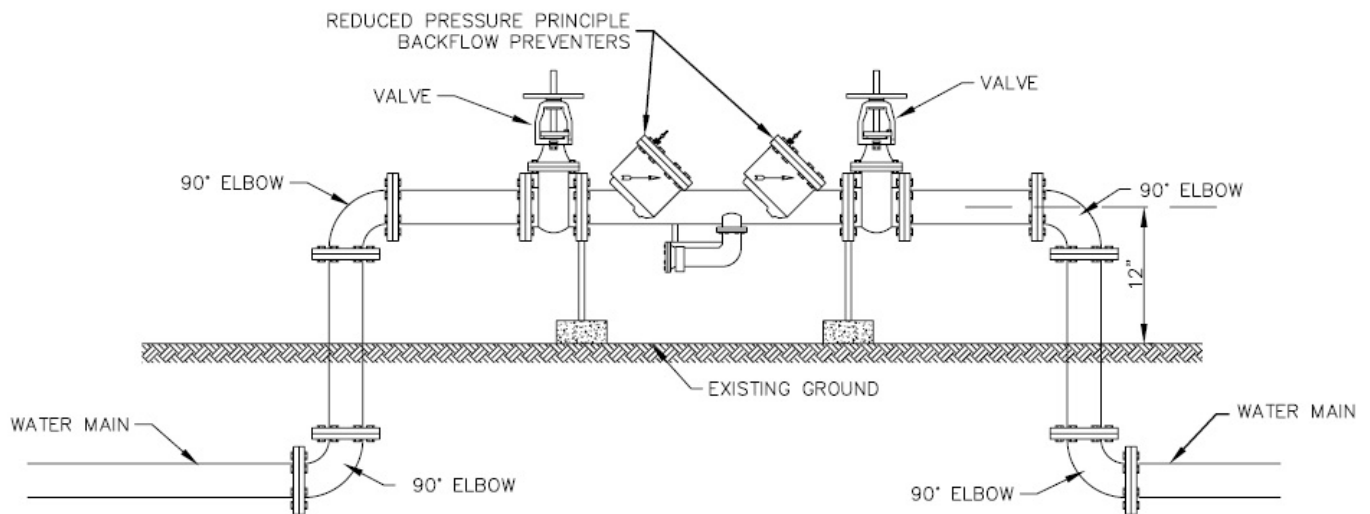
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**Standards Manual**

**Waterline Offset Detail**

Standard Detail:	WTR-5
Date Modified:	6/25/15



NOTE:  
ALL THE ABOVE-GROUND PIPE & FITTINGS  
TO BE DUCTILE IRON AWWA C-110-87 OR  
BETTER.

## BACKFLOW PREVENTOR DEVICE

*NOT TO SCALE*

NOTES:

1. PROVIDE WALL SLEEVES AND RESILIENT CONNECTORS TO SEAL ANNULUS AROUND PIPE.
2. PROVIDE ADDITIONAL REINFORCEMENT AT CONCRETE OPENING.
3. COVER TO BE LOCKING TYPE.



### CITY OF ARANSAS PASS

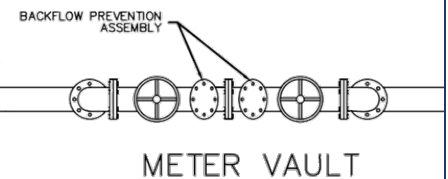
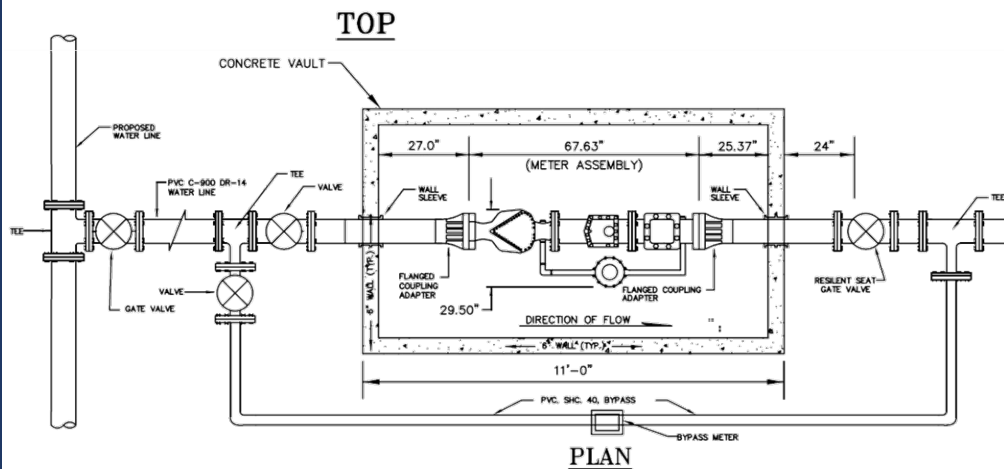
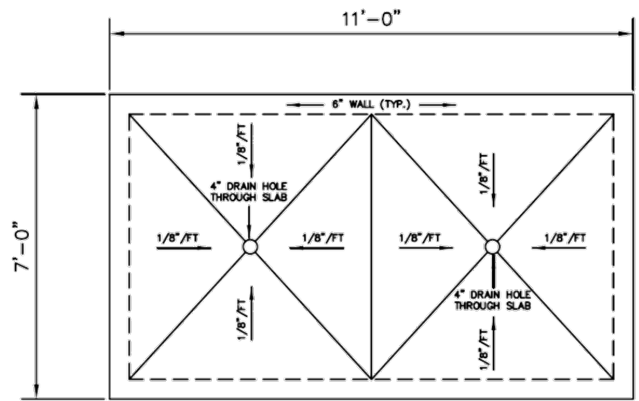
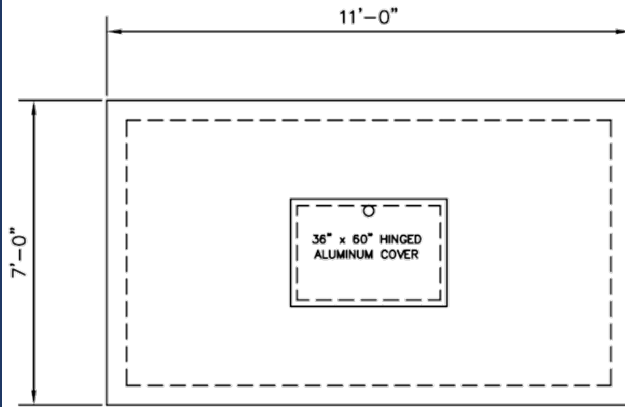
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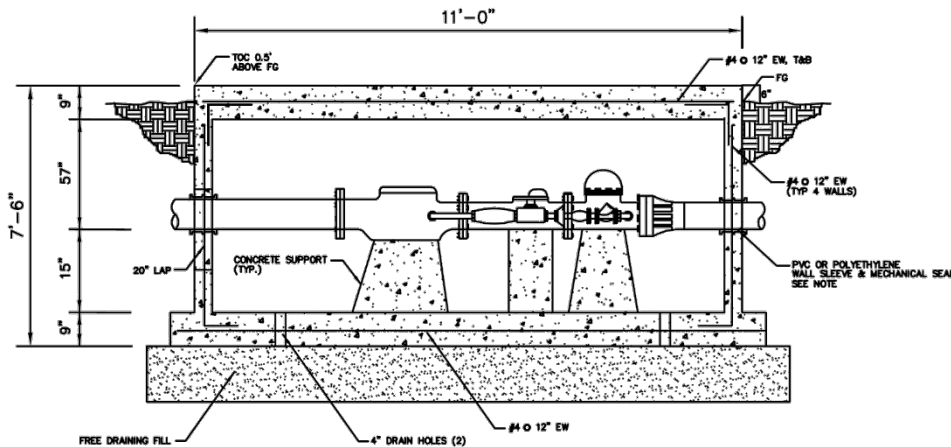
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### **Standards Manual** **Backflow Preventor Device**

Standard Detail:	WTR-6
Date Modified:	6/25/15



TOTAL HEIGHT	7.5'
LENGTH	11'
WIDTH	7'
WALL THICKNESS	6"
REINFORCEMENT	#4 BARS @ 12" O.C. E.W.
FOUNDATION	12' x 9' x 0.75'
ALUMINUM COVER	



**SECTION  
FLOW METER VAULT DETAIL**  
NOT TO SCALE

- NOTES:
1. PROVIDE WALL SLEEVES AND RESILIENT CONNECTORS TO SEAL ANNULUS AROUND PIPE.
  2. PROVIDE ADDITIONAL REINFORCEMENT AT CONCRETE OPENING.
  3. COVER TO BE LOCKING TYPE.

### METER ASSEMBLY

NO.	NAME	QTY.	MATERIAL
1	SENSUS TURBO METER (FIRE RATED)	1	BRONZE
2	STRAINER (FIRE RATED)	1	DUCTILE IRON
3	SMITH-BLAIR DETECTOR CHECK VALVE	1	CAST IRON
4	SENSUS SR METER	1	BRONZE
5	CHECK VALVE	1	BRONZE
6	BALL VALVE-LOCKING	2	BRONZE

### QUANTITIES

NO.	NAME	QTY.	MATERIAL
1	SENSUS METER ASSEMBLY	1	
2	GATE VALVES & BOXES	2	
3	COUPLING ADAPTER	2	
4	CONCRETE VAULT	1	
5	CONCRETE BLOCK SUPPORTS	4	
6	WALL SLEEVES & MECHANICAL SEALS	2	



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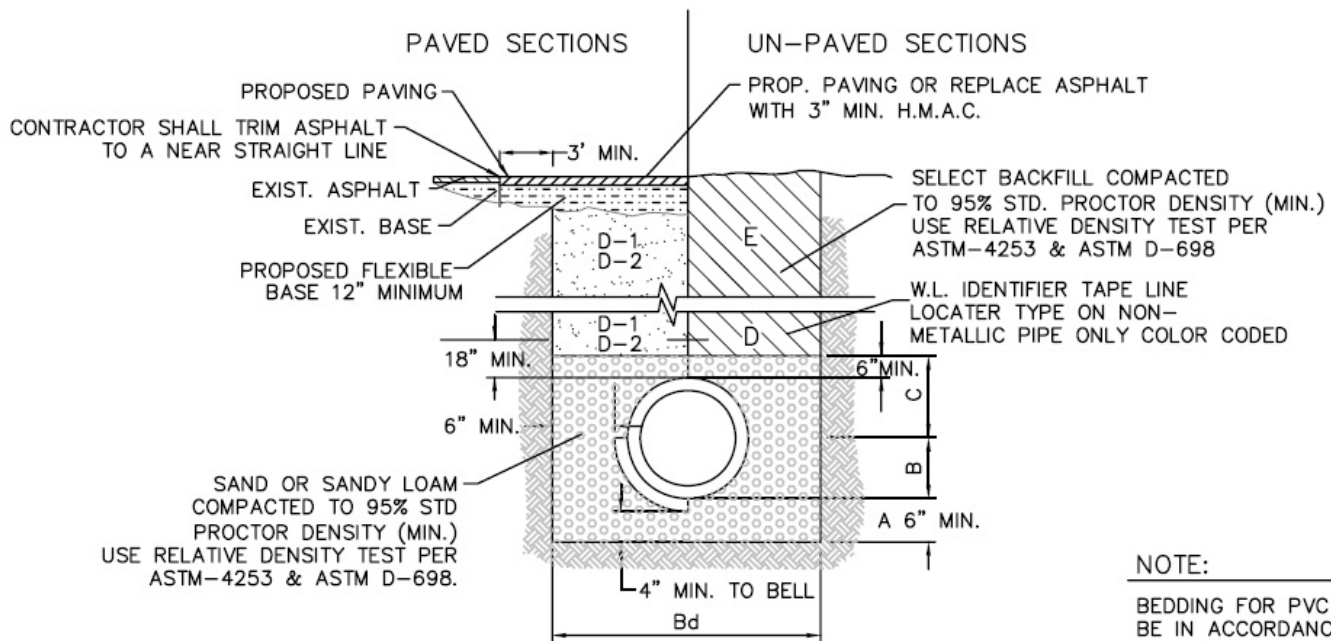
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## Standards Manual Meter/Backflow & Vault

Standard Detail:	WTR-7
Date Modified:	6/25/15



- A. SAND OR SANDY LOAM BEDDING PLACED BEFORE PIPE IS LAID UP TO FLOW LINE OF PIPE. (MIN. THICKNESS=6")
- B. SAND OR SANDY LOAM BACKFILL PLACED AFTER PIPE IS LAID FROM BOTTOM OF PIPE TO SPRING LINE OF PIPE. (4" LIFTS, HAND TAMPED) Bd TRENCH WIDTHS SHALL BE PIPE O.D. + 12" OR IN ACCORDANCE WITH ASTM 2331 FOR PVC PIPE.
- C. SAND OR SANDY LOAM BACKFILL PLACED FROM SPRING LINE OF PIPE TO 6" ABOVE TOP OF PIPE. (6" LIFTS, HAND TAMPED)
- D-1. (CITY STREETS, PARKING AREA, SELECT EXCAVATED BACKFILL MATERIAL COMPACTED TO 95% SPD. (8" LIFTS, MECHANICAL COMPACTION)
- D-2. (STATE MAINTAINED ROADWAY) COMPACTED SAND/CEMENT STABILIZED BACKFILL WITH 7% PORTLAND CEMENT COMPACTED AS PER ASTM D-4253 AND ASTM D-698.
- E. SELECTED EARTH BACKFILL COMPACTED TO 90% STANDARD PROCTOR DENSITY (12" LIFT, MECHANICAL COMPACTION). FOUNDATION PREPARATION (WELLPOINTS, GRAVEL OR CEMENT STABILIZATION, OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE. BACKFILLING AT STRUCTURES SHALL BE PLACED IN UNIFORM LAYERS, MOISTENED AS REQUIRED TO APPROXIMATE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO 95% STANDARD PROCTOR DENSITY (USE RELATIVE DENSITY TEST PER ASTM D-4253 & ASTM D-698). THE THICKNESS OF EACH LOOSE LAYER SHALL NOT EXCEED 6". STRUCTURE BACKFILL MATERIAL SHALL BE SAND, APPROVED SITE SOIL, OR OTHER APPROVED SUBSTITUTE.

## TRENCH BEDDING CIRCULAR PIPE (WATER)

NOT TO SCALE



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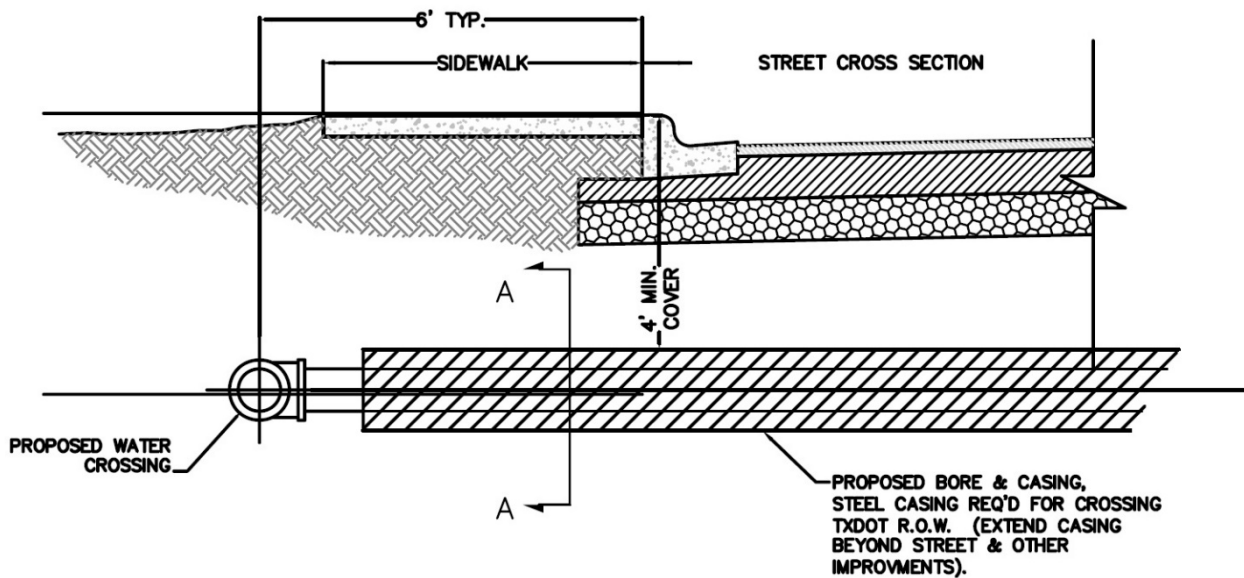
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## Standards Manual Trench Bedding (Water)

Standard Detail:	WTR-8
Date Modified:	6/25/15



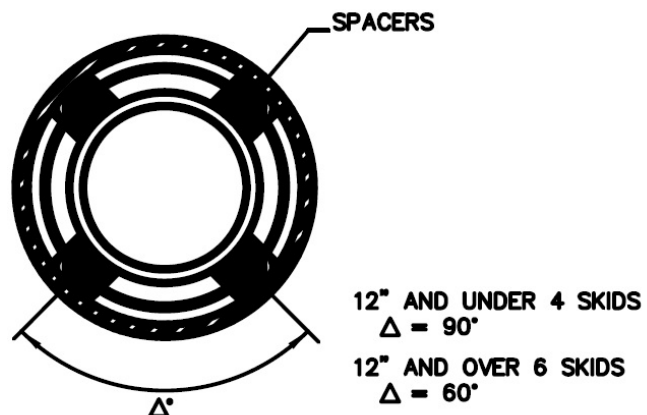


## BORE & CASING

TABLE OF CASING SIZES

NOMINAL PIPE SIZE	CASING SIZE (INSIDE DIA.)	CASING MINIMUM WALL THICKNESS
4"	3"-10"	0.25"
6"	10"-12"	0.25"
8"	14"-16"	0.25"
12"	22"	0.25"

CARRIER PIPE - P.V.C. C900 DR-18



## SECTION "A-A"

NOTE:

WATERLINE TO BE SLOPED DOWN OR UP @ CROSSING IF IT CONFLICTS W/ EXISTING SEWER LINES OR DRAINAGE STRUCTURES.

## TRENCH BEDDING CIRCULAR PIPE (WATER)

NOT TO SCALE



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Standards Manual

Bore & Casing Detail

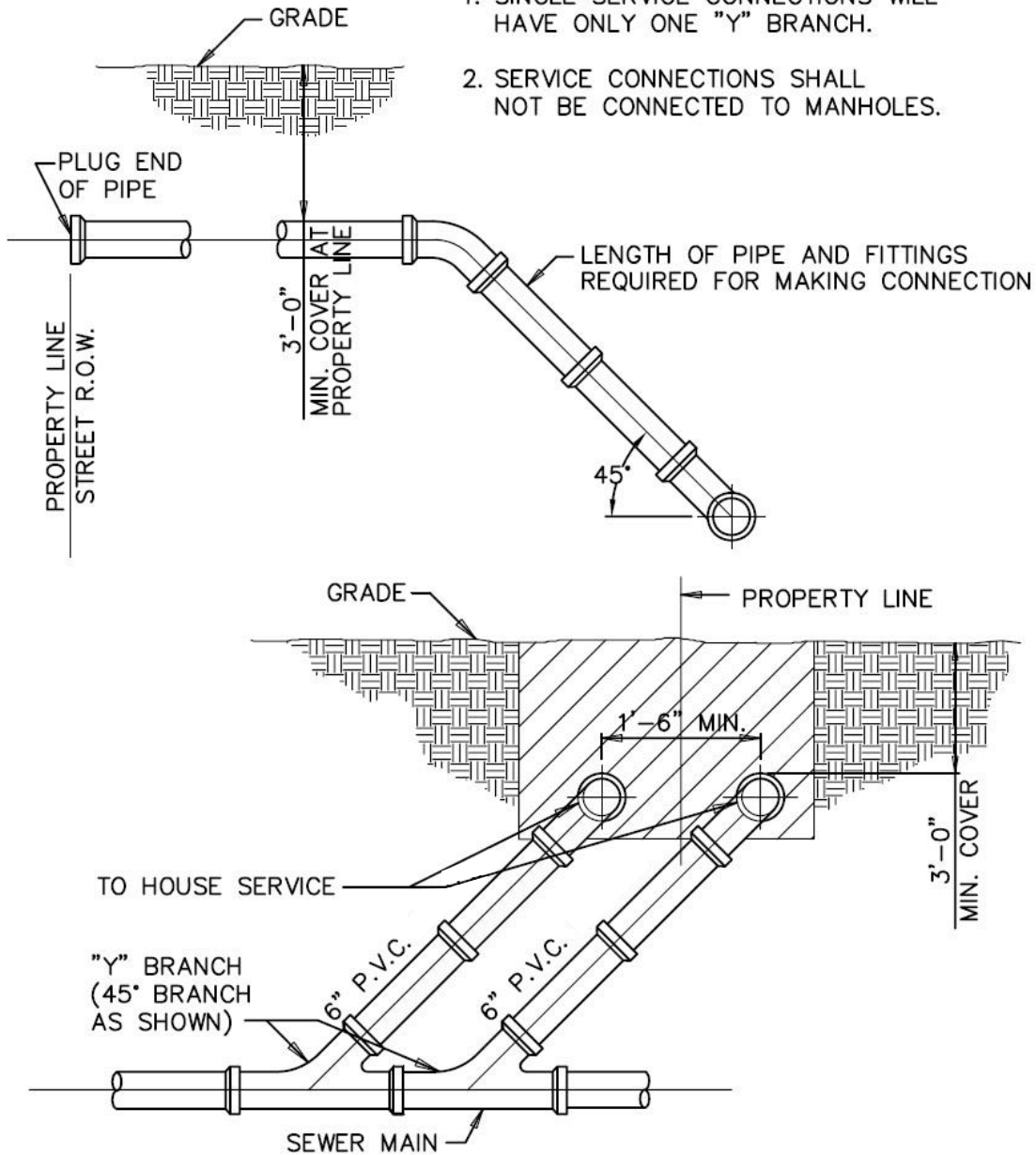
Standard Detail:	WTR-9
Date Modified:	6/25/15



**NOTES:**

1. SINGLE SERVICE CONNECTIONS WILL HAVE ONLY ONE "Y" BRANCH.

2. SERVICE CONNECTIONS SHALL NOT BE CONNECTED TO MANHOLES.



## SANITARY SEWER SERVICE CONNECTION

NOT TO SCALE



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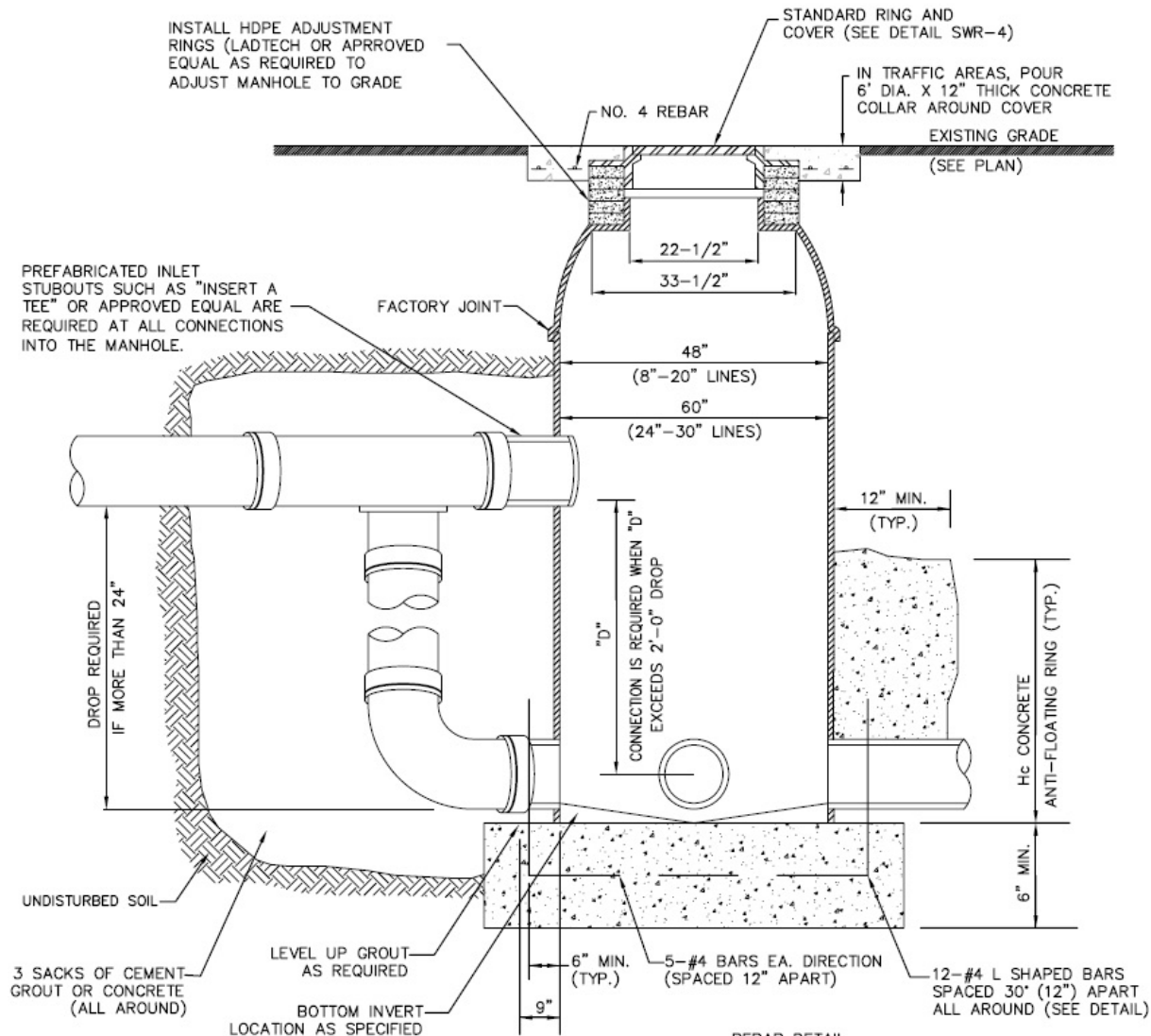
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### Standards Manual

Sanitary Sewer Service Connection

Standard Detail:	SWR-1
Date Modified:	6/25/15



**NOTE:**

1. ALL CONCRETE SURFACES AND GRADE RINGS IN MANHOLES SHALL BE COATED WITH COAL TAR. (INERTOL)
2. BACKFILL SHALL BE SAND OR SANDY LOAM MATERIAL.
3. MANHOLE SHALL BE PLACED ON 6-INCH SAND BEDDING. SUBGRADE SHALL BE COMPACTED TO 95% DENSITY

## FIBERGLASS SANITARY SEWER MANHOLE

NOT TO SCALE



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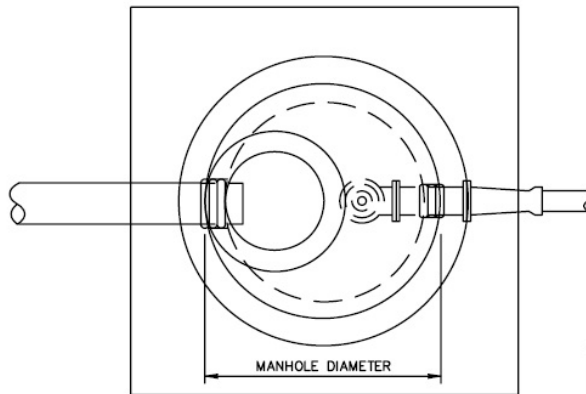
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### Standards Manual

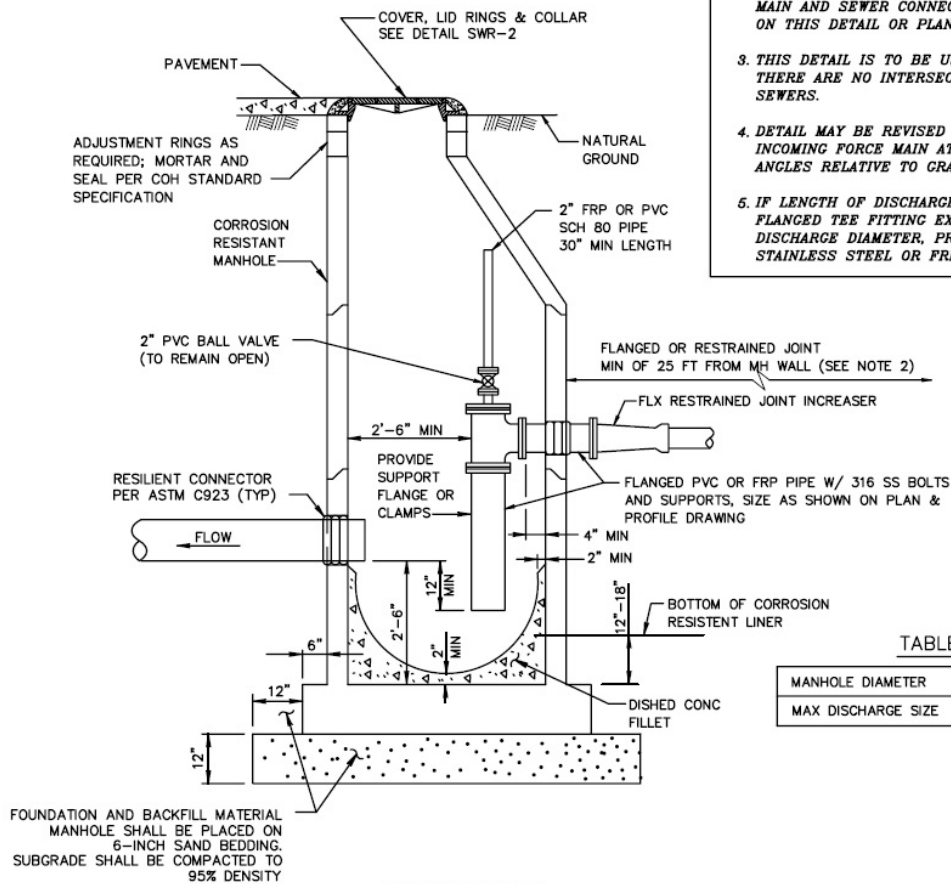
Sanitary Sewer Fiberglass Manhole Detail

Standard Detail: SWR-2

Date Modified: 6/25/15



PLAN VIEW



ELEVATION VIEW

SANITARY SEWER CORROSION RESISTANT MANHOLE FOR FORCE MAIN DISCHARGE

NOTE: NOT TO SCALE

#### NOTES:

1. SEAT MANHOLE FRAME IN SEALANT PER STANDARD SPECIFICATION.
2. IF FORCE MAIN HAS BENDS WITHIN 25 FT OF MANHOLE, EXTEND RESTRAINED JOINTS TO 25 FT MINIMUM UPSTREAM OF BEND.
3. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREA.
4. MINIMUM REINFORCING IN BASE SHALL BE 5 # 8 E W.
5. PRECAST RINGS SHALL BE PROVIDED FOR A COMBINED ADJUSTMENT HEIGHT OF AT LEAST 12". THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 1'-6".

#### NOTES TO SPECIFIER:

1. INDICATE SIZE OF FORCE MAIN, INCREASER AND DISCHARGE EITHER ON THIS DETAIL OR ON PLAN AND PROFILE.
2. PROVIDE INVERT ELEVATIONS OR FORCE MAIN AND SEWER CONNECTIONS TO MH, ON THIS DETAIL OR PLAN AND PROFILE.
3. THIS DETAIL IS TO BE USED ONLY WHEN THERE ARE NO INTERSECTING GRAVITY SEWERS.
4. DETAIL MAY BE REVISED TO ORIENT INCOMING FORCE MAIN AT OTHER ANGLES RELATIVE TO GRAVITY SEWER.
5. IF LENGTH OF DISCHARGE DROP BELOW FLANGED TEE FITTING EXCEEDS 7 TIMES DISCHARGE DIAMETER, PROVIDE STAINLESS STEEL OR FRP PIPE SUPPORT.

TABLE

MANHOLE DIAMETER	4'-0"	5'-0"	6'-0"
MAX DISCHARGE SIZE	6"	14"	24"



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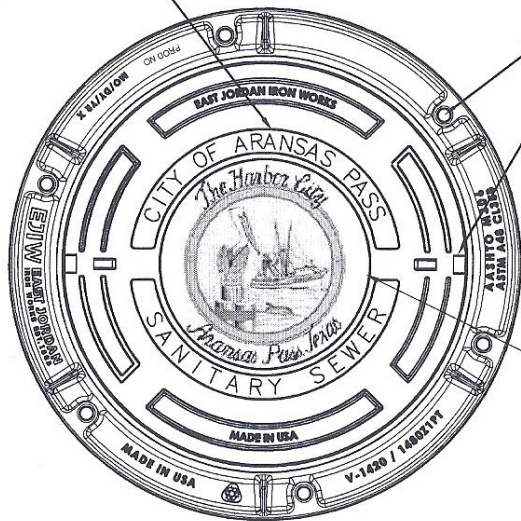
### Standards Manual

Sanitary Sewer Corrosion Resistant Manhole  
For Force Main Discharge

Standard Detail: SWR-3

Date Modified: 6/25/15

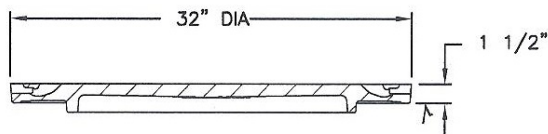
1" SHARP FACE  
GOTHIC (TYP)



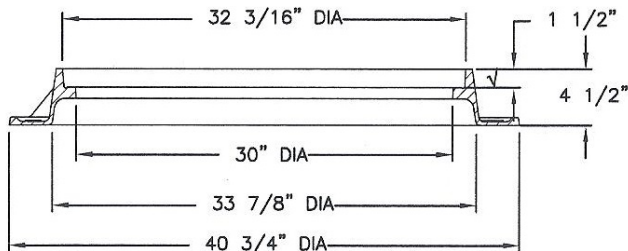
(6) 1" DIA HOLES  
ON A 37" B.C.

EPIC® PICKBARS

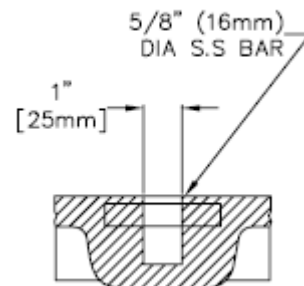
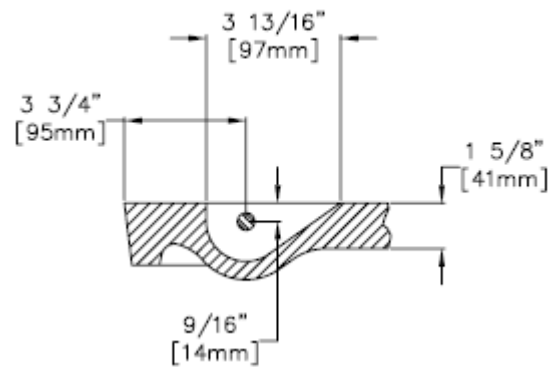
CUSTOM LOGO



COVER SECTION



FRAME SECTION



PICKBAR DETAILS



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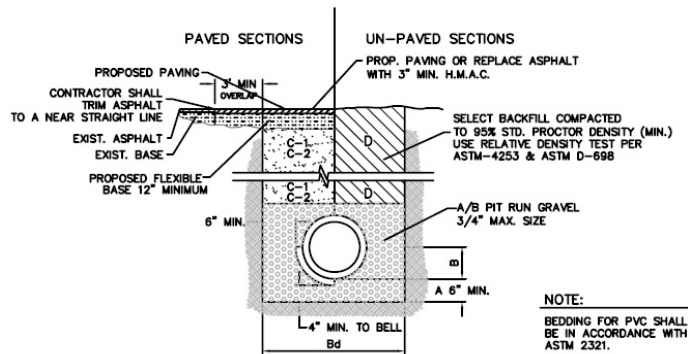
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### Standards Manual

Sanitary Sewer Lid

Standard Detail:	SWR-4
Date Modified:	6/25/15

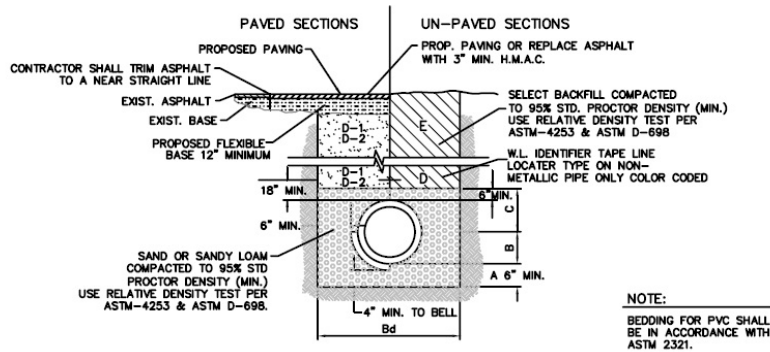




- GRAVEL BEDDING PLACED BEFORE PIPE IS LAID UP TO FLOW OF PIPE (MIN. THICKNESS = 6") - PIT RUN GRAVEL 3/4" MAX. SIZE.
- GRAVEL PLACED AFTER PIPE IS LAID, FROM BOTTOM OF PIPE TO 4" ABOVE TOP OF PIPE. PIT RUN GRAVEL 3/4" MAX. SIZE.
- TRENCH WIDTHS SHALL BE BELL O.D. + 12" OR IN ACCORDANCE WITH ASTM 2331 FOR PVC PIPE AND ASTM C12 (LATEST) FOR VITRIFIED CLAY PIPE. C-1 (CITY STREET, PARKING AREA, DRIVEWAYS). SELECT EXCAVATED BACK FILL COMPACTED TO 95% STP. PROCTOR IN 8" LIFTS, MECHANICAL COMPACTION. C-2 (STATE MAINTAINED ROADWAYS) COMPACTED SAND/CEMENT STABILIZED BACKFILL WITH 7% PORTLAND CEMENT COMPACTED AS PER ASTM D-4253 AND ASTM D-698.
- SELECTED EARTH BACKFILL COMPACTED TO 90% STANDARD PROCTOR DENSITY (12" LIFT, MECHANICAL COMPACTION). FOUNDATION PREPARATION (WELLPOINTS, GRAVEL OR CEMENT STABILIZATION, OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE. BACKFILLING AT STRUCTURES SHALL BE PLACED IN UNIFORM LAYERS, MOISTENED AS REQUIRED TO APPROXIMATE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO 95% STANDARD PROCTOR DENSITY (USE RELATIVE DENSITY TEST PER ASTM D-4253 & ASTM D-698). THE THICKNESS OF EACH LOOSE LAYER SHALL NOT EXCEED 6". STRUCTURE BACKFILL MATERIAL SHALL BE SAND, APPROVED SITE SOIL, OR OTHER APPROVED SUBSTITUTE.

#### **TRENCH BEDDING CIRCULAR PIPE (SANITARY SEWER)**

NOT TO SCALE



- SAND OR SANDY LOAM BEDDING PLACED BEFORE PIPE IS LAID UP TO FLOW LINE OF PIPE. (MIN. THICKNESS=6")
- SAND OR SANDY LOAM BACKFILL PLACED AFTER PIPE IS LAID FROM BOTTOM OF PIPE TO SPRING LINE OF PIPE. (4" LIFTS, HAND TAMPED) B<sub>d</sub> TRENCH WIDTHS SHALL BE PIPE O.D. + 12" OR IN ACCORDANCE WITH ASTM 2331 FOR PVC PIPE.
- SAND OR SANDY LOAM BACKFILL PLACED FROM SPRING LINE OF PIPE TO 6" ABOVE TOP OF PIPE. (6" LIFTS, HAND TAMPED)
- D-1. (CITY STREETS, PARKING AREA, SELECT EXCAVATED BACKFILL MATERIAL COMPACTED TO 95% SPD. (8" LIFTS, MECHANICAL COMPACTION)
- D-2. (STATE MAINTAINED ROADWAY) COMPACTED SAND/CEMENT STABILIZED BACKFILL WITH 7% PORTLAND CEMENT COMPACTED AS PER ASTM D-4253 AND ASTM D-698.
- E. SELECTED EARTH BACKFILL COMPACTED TO 90% STANDARD PROCTOR DENSITY (12" LIFT, MECHANICAL COMPACTION). FOUNDATION PREPARATION (WELLPOINTS, GRAVEL OR CEMENT STABILIZATION, OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE. BACKFILLING AT STRUCTURES SHALL BE PLACED IN UNIFORM LAYERS, MOISTENED AS REQUIRED TO APPROXIMATE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO 95% STANDARD PROCTOR DENSITY (USE RELATIVE DENSITY TEST PER ASTM D-4253 & ASTM D-698). THE THICKNESS OF EACH LOOSE LAYER SHALL NOT EXCEED 6". STRUCTURE BACKFILL MATERIAL SHALL BE SAND, APPROVED SITE SOIL, OR OTHER APPROVED SUBSTITUTE.

#### **TRENCH BEDDING CIRCULAR PIPE (PRESSURE)**

NOT TO SCALE



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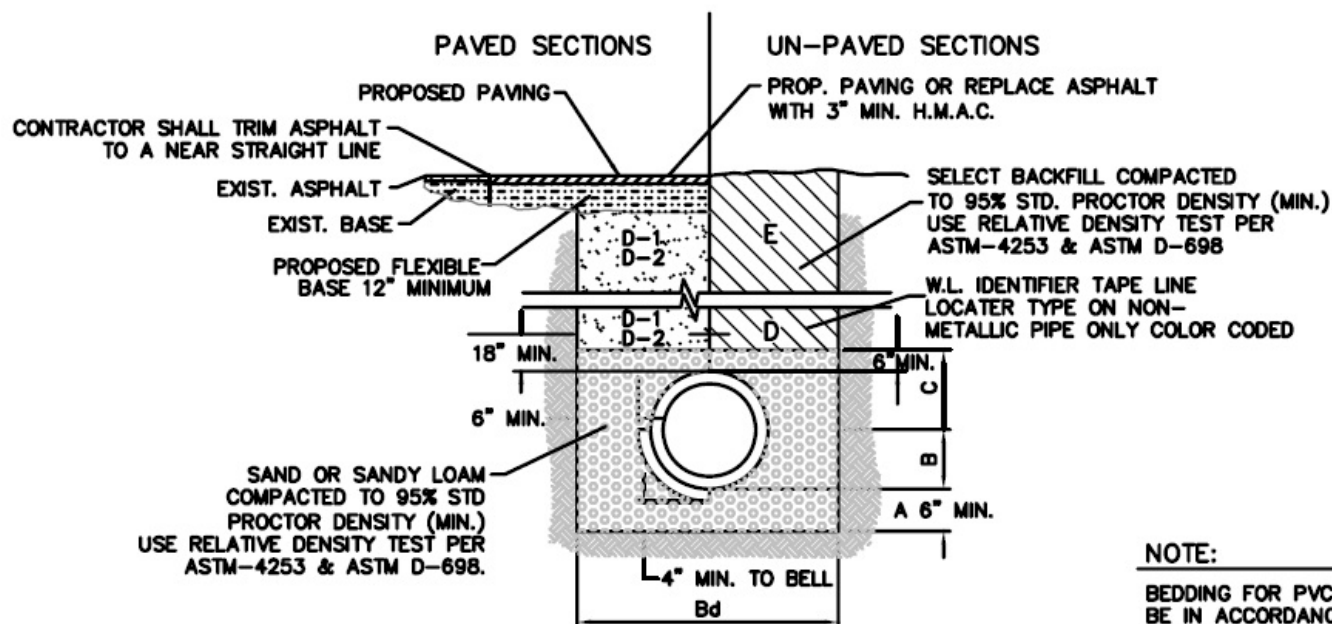
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### **Standards Manual** **Sewer Trench Bedding Detail**

<b>Standard Detail:</b>	<b>SWR-5</b>
<b>Date Modified:</b>	<b>6/25/15</b>



**NOTE:**

BEDDING FOR PVC SHALL BE IN ACCORDANCE WITH ASTM 2321.

- A. SAND OR SANDY LOAM BEDDING PLACED BEFORE PIPE IS LAID UP TO FLOW LINE OF PIPE. (MIN. THICKNESS=6")
- B. SAND OR SANDY LOAM BACKFILL PLACED AFTER PIPE IS LAID FROM BOTTOM OF PIPE TO SPRING LINE OF PIPE. (4" LIFTS, HAND TAMPED) Bd TRENCH WIDTHS SHALL BE PIPE O.D. + 12" OR IN ACCORDANCE WITH ASTM 2331 FOR PVC PIPE.
- C. SAND OR SANDY LOAM BACKFILL PLACED FROM SPRING LINE OF PIPE TO 6" ABOVE TOP OF PIPE. (6" LIFTS, HAND TAMPED)
- D-1. (CITY STREETS, PARKING AREA, SELECT EXCAVATED BACKFILL MATERIAL COMPACTED TO 95% SPD. (8" LIFTS, MECHANICAL COMPACTION)
- D-2. (STATE MAINTAINED ROADWAY) COMPACTED SAND/CEMENT STABILIZED BACKFILL WITH 7% PORTLAND CEMENT COMPACTED AS PER ASTM D-4253 AND ASTM D-698.
- E. SELECTED EARTH BACKFILL COMPACTED TO 90% STANDARD PROCTOR DENSITY (12" LIFT, MECHANICAL COMPACTION). FOUNDATION PREPARATION (WELLPOINTS, GRAVEL OR CEMENT STABILIZATION, OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE. BACKFILLING AT STRUCTURES SHALL BE PLACED IN UNIFORM LAYERS, MOISTENED AS REQUIRED TO APPROXIMATE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO 95% STANDARD PROCTOR DENSITY (USE RELATIVE DENSITY TEST PER ASTM D-4253 & ASTM D-698). THE THICKNESS OF EACH LOOSE LAYER SHALL NOT EXCEED 6". STRUCTURE BACKFILL MATERIAL SHALL BE SAND, APPROVED SITE SOIL, OR OTHER APPROVED SUBSTITUTE.

## **TRENCH BEDDING CIRCULAR PIPE (PRESSURE)**



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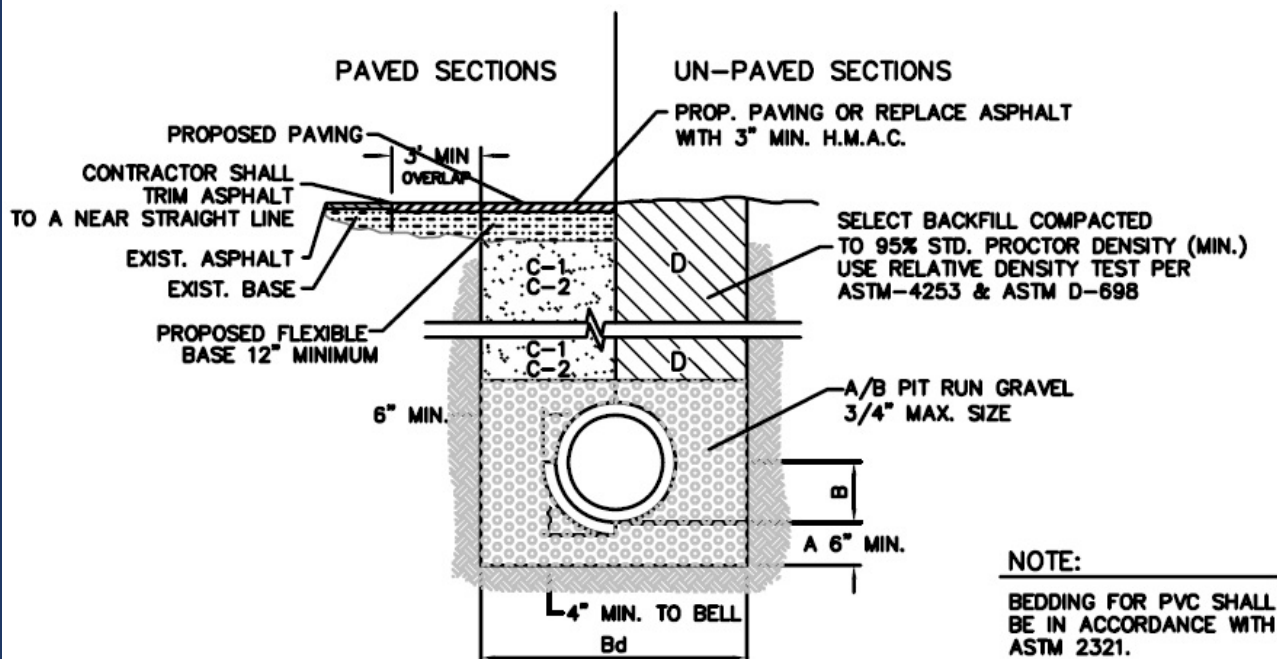
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## **Standards Manual**

### **Sewer Trench Bedding Detail**

Standard Detail:	SWR-5-1
Date Modified:	6/25/15





- GRAVEL BEDDING PLACED BEFORE PIPE IS LAID UP TO FLOW OF PIPE (MIN. THICKNESS = 6") - PIT RUN GRAVEL 3/4" MAX. SIZE.
- GRAVEL PLACED AFTER PIPE IS LAID, FROM BOTTOM OF PIPE TO 4" ABOVE TOP OF PIPE. PIT RUN GRAVEL 3/4" MAX. SIZE
- TRENCH WIDTHS SHALL BE BELL O.D. + 12" OR IN ACCORDANCE WITH ASTM 2331 FOR PVC PIPE AND ASTM C12 (LATEST) FOR VITRIFIED CLAY PIPE. C-1 (CITY STREET, PARKING AREA, DRIVEWAYS). SELECT EXCAVATED BACK FILL COMPACTED TO 95% STP. PROCTOR IN 8" LIFTS, MECHANICAL COMPACTION. C-2 (STATE MAINTAINED ROADWAYS) COMPACTED SAND/CEMENT STABILIZED BACKFILL WITH 7% PORTLAND CEMENT COMPACTED AS PER ASTM D-4253 AND ASTM D-698.
- SELECTED EARTH BACKFILL COMPACTED TO 90% STANDARD PROCTOR DENSITY (12" LIFT, MECHANICAL COMPACTION). FOUNDATION PREPARATION (WELLPOINTS, GRAVEL OR CEMENT STABILIZATION, OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE. BACKFILLING AT STRUCTURES SHALL BE PLACED IN UNIFORM LAYERS, MOISTENED AS REQUIRED TO APPROXIMATE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO 95% STANDARD PROCTOR DENSITY (USE RELATIVE DENSITY TEST PER ASTM D-4253 & ASTM D-698). THE THICKNESS OF EACH LOOSE LAYER SHALL NOT EXCEED 6". STRUCTURE BACKFILL MATERIAL SHALL BE SAND, APPROVED SITE SOIL, OR OTHER APPROVED SUBSTITUTE.

## TRENCH BEDDING CIRCULAR PIPE (SANITARY SEWER)



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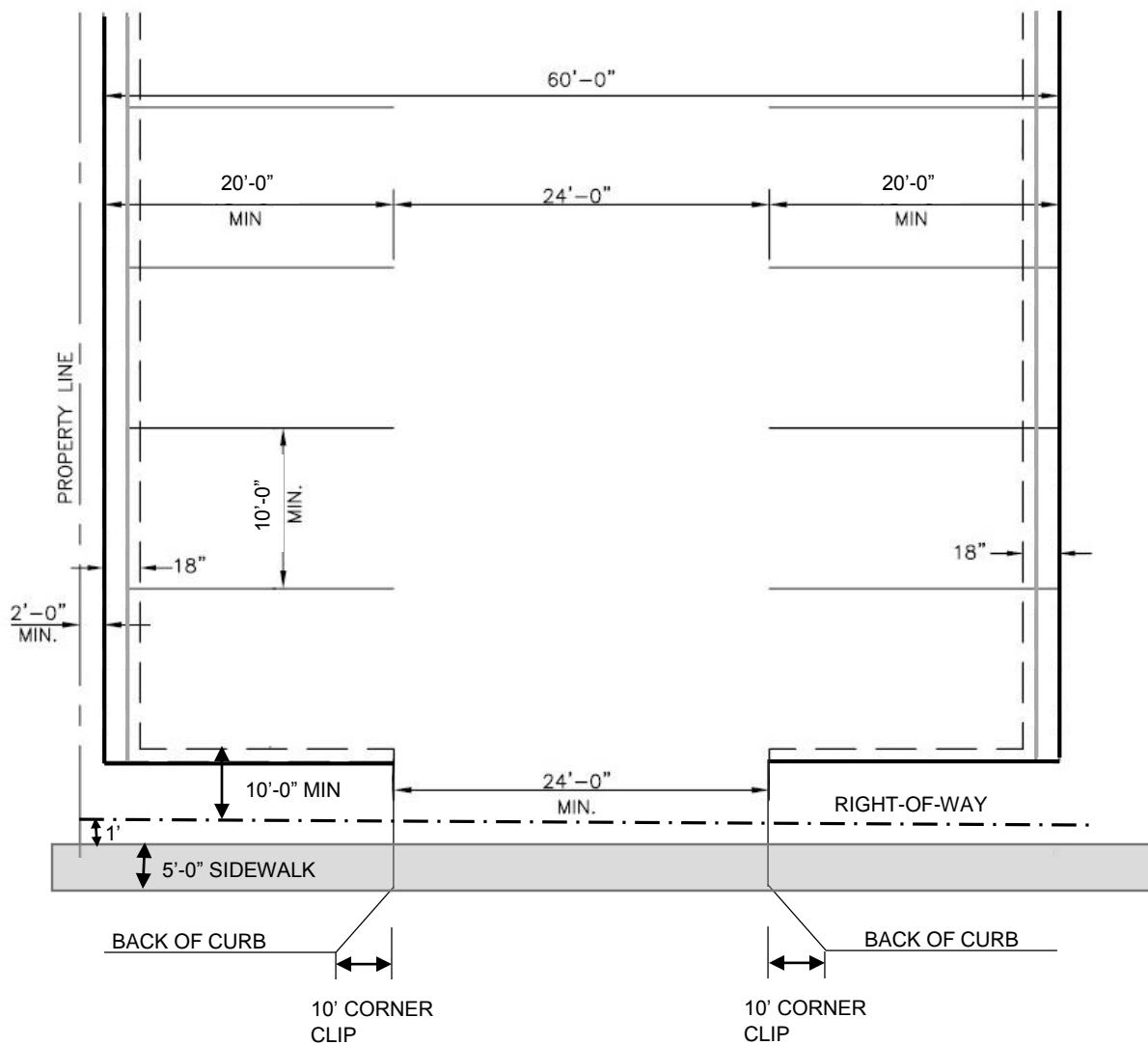
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### Standards Manual Sewer Trench Bedding Detail

Standard Detail:	SWR-5-2
Date Modified:	6/25/15



**NOTES:**

1. 18" MIN. CURB AND GUTTER
2. 2' MIN. SIDE SETBACK & 10' FRONT SETBACK
3. LANDSCAPING REQUIREMENTS MUST BE MET WITHIN PROPERTY LINE.
4. DETENTION REQUIREMENTS MUST BE MET WITHIN THE PROPERTY.

PROPERTY LINES

STALL LINES

## 90 DEGREE PARKING

NOT TO SCALE



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### Standards Manual

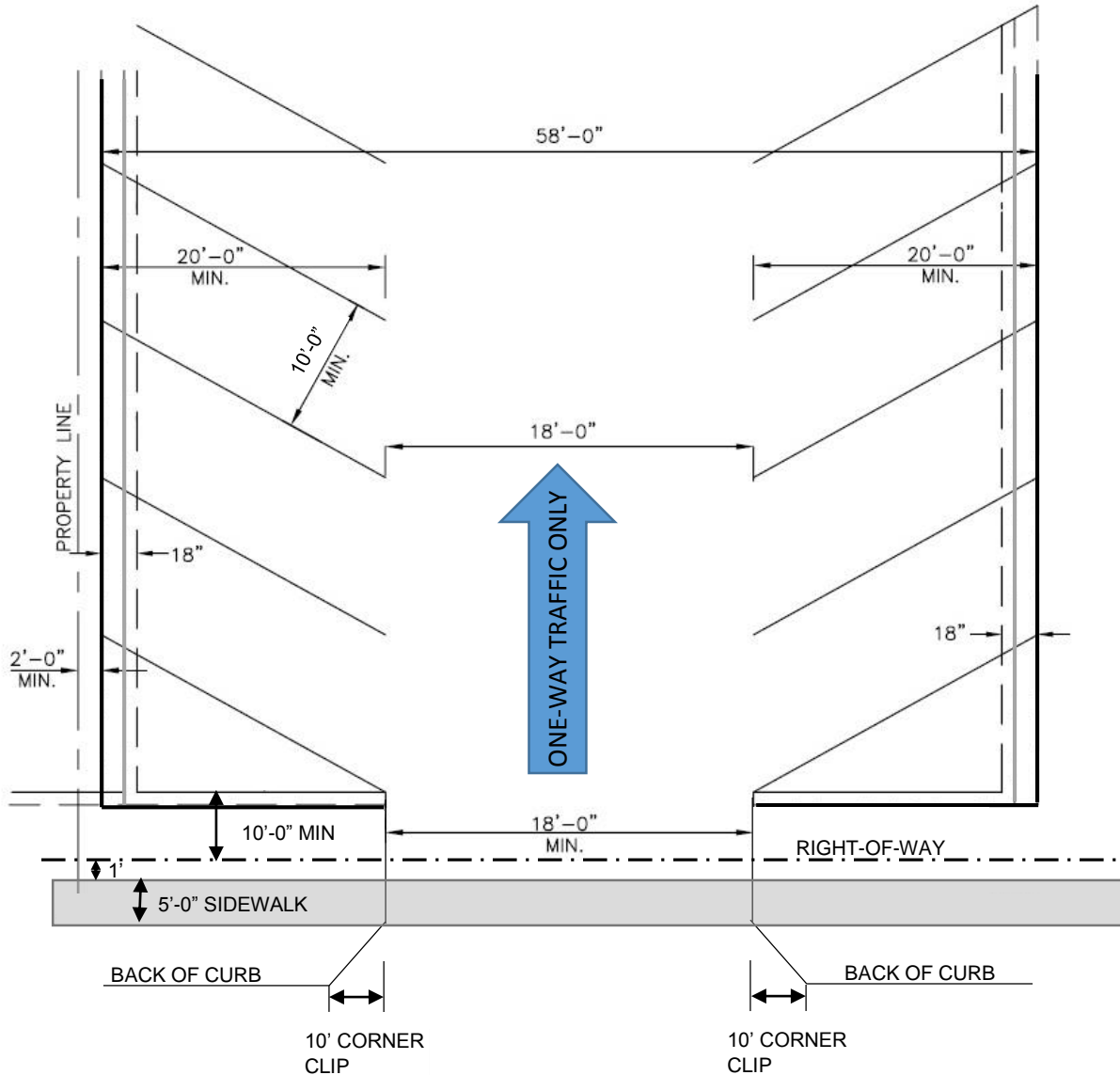
#### 90° Degree Parking

**Standard Detail:**

**PKG-1**

**Date Modified:**

**6/25/15**



**NOTES:**

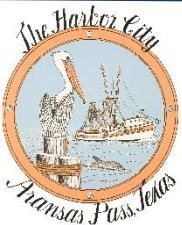
1. 18" MIN. CURB AND GUTTER
2. 2' MIN. SIDE SETBACK & 10' FRONT SETBACK
3. LANDSCAPING REQUIREMENTS MUST BE MET WITHIN PROPERTY LINE.
4. DETENTION REQUIREMENTS MUST BE MET WITHIN THE PROPERTY.

PROPERTY LINES

STALL LINES

## 60 DEGREE PARKING

NOT TO SCALE



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## Standards Manual

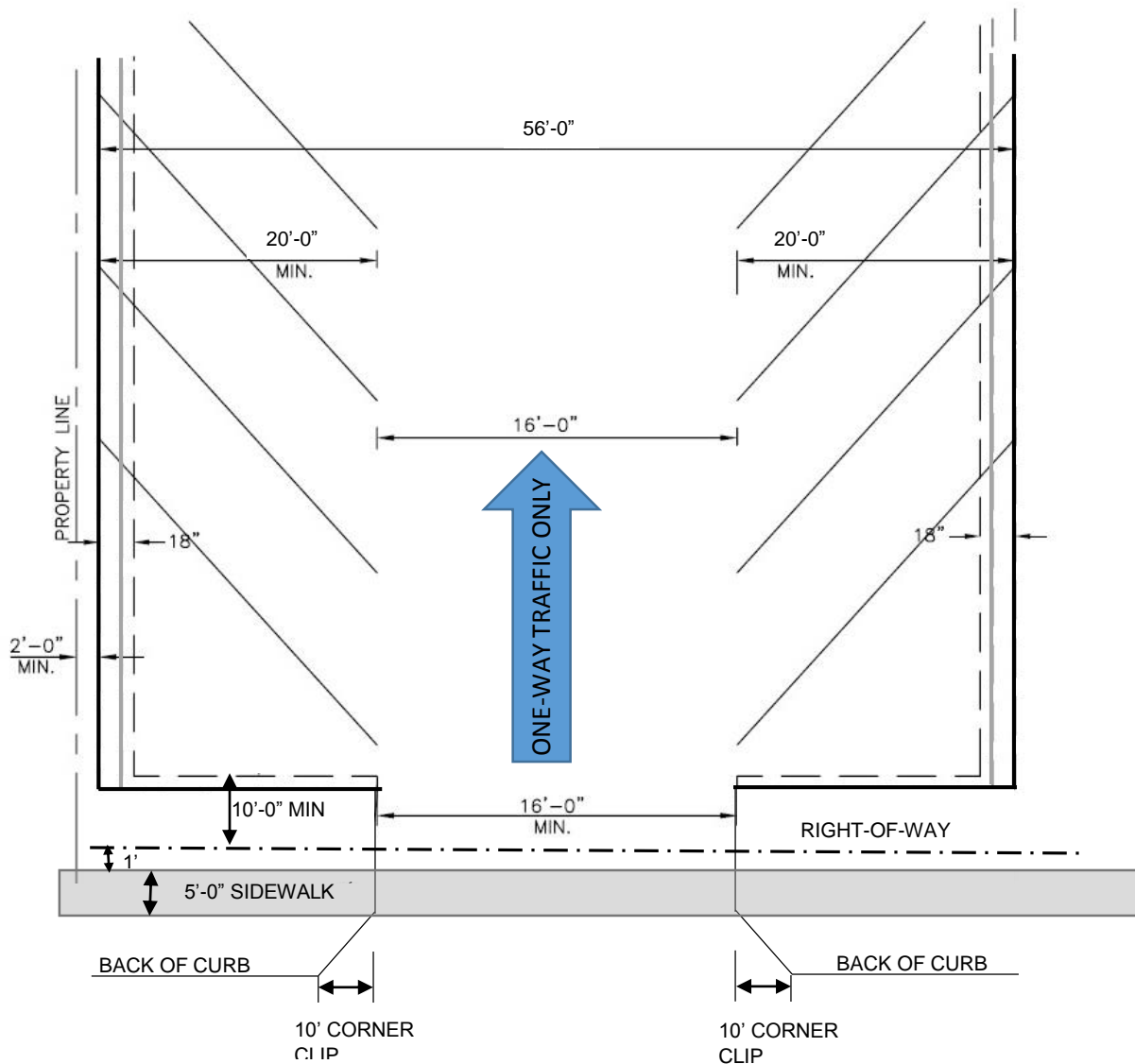
**60° Degree Parking**

**Standard Detail:**

**PKG-2**

**Date Modified:**

**6/25/15**



**NOTES:**

1. 18" MIN. CURB AND GUTTER
2. 2' MIN. SIDE SETBACK & 10' FRONT SETBACK
3. LANDSCAPING REQUIREMENTS MUST BE MET WITHIN PROPERTY LINE.
4. DETENTION REQUIREMENTS MUST BE MET WITHIN THE PROPERTY.

**45 DEGREE PARKING**

NOT TO SCALE



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**Standards Manual**

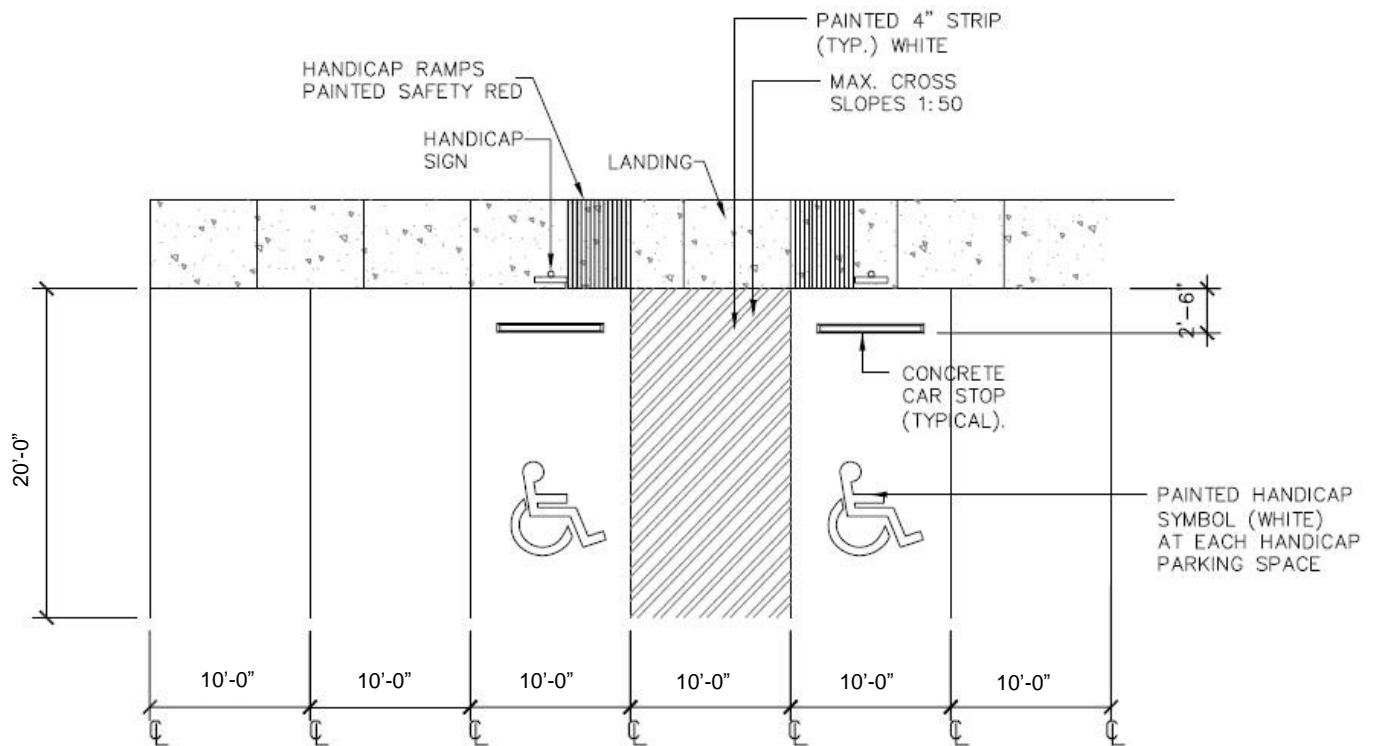
**45° Degree Parking**

**Standard Detail:**

**PKG-3**

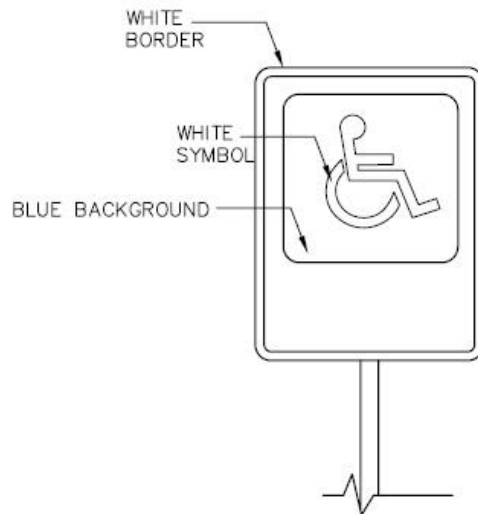
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TYPICAL DETAIL FOR HANDICAP PARKING

NOTE: NOT TO SCALE



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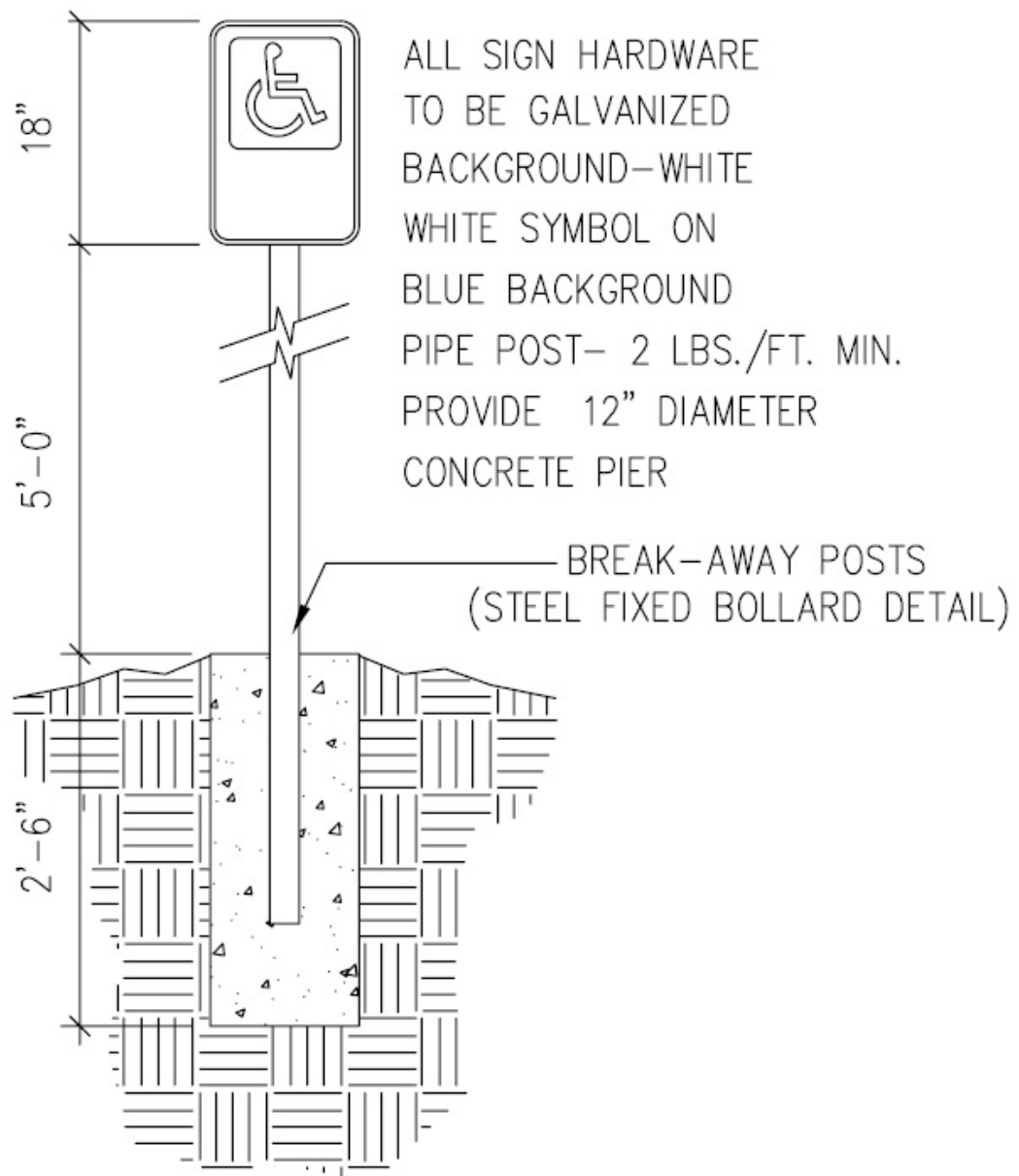
### Standards Manual

#### Typical Detail For Handicap Parking

Standard Detail:	PKG-4
Date Modified:	6/25/15







## HANDICAP PARKING SIGN INSTALLATION

NOTE: NOT TO SCALE



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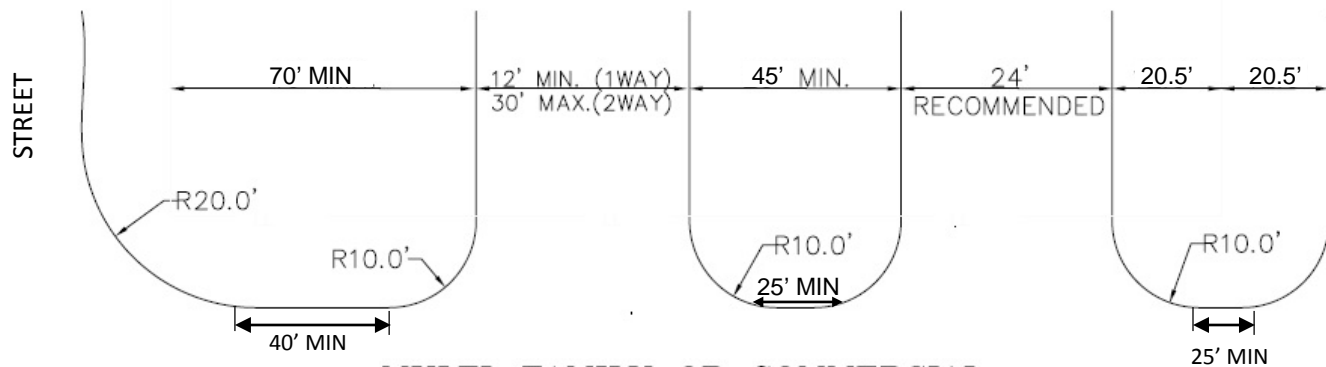
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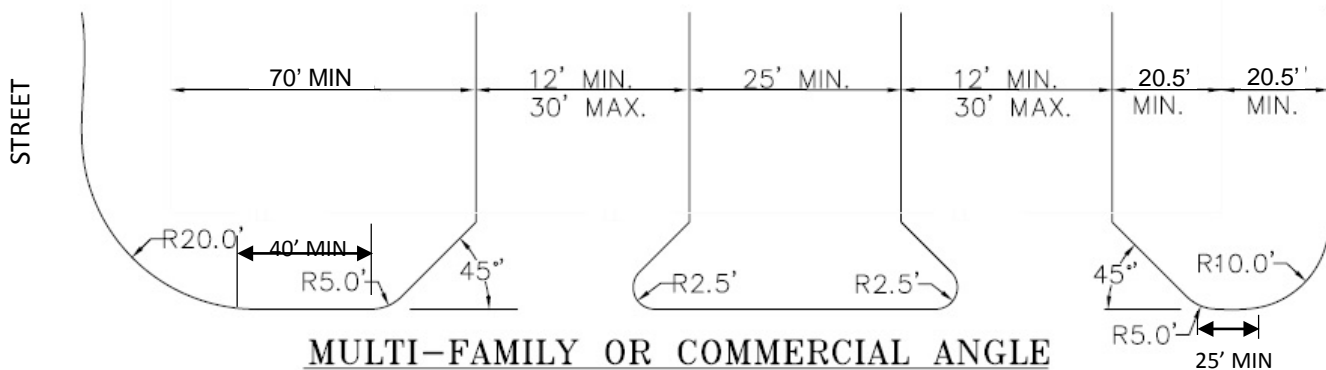
### **Standards Manual**

#### **Handicap Parking Sign Installation**

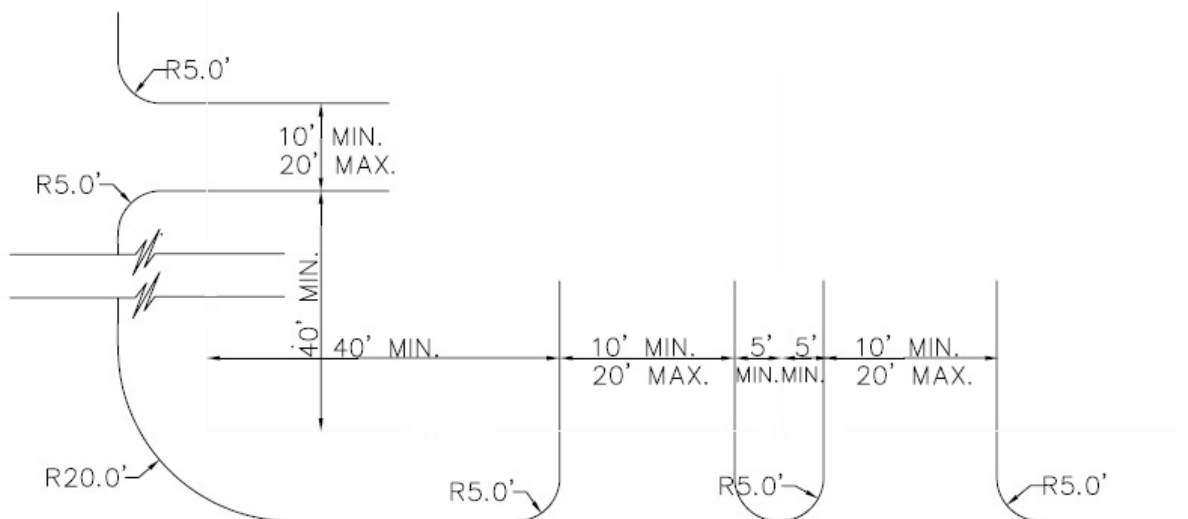
<b>Standard Detail:</b>	<b>PKG-6</b>
<b>Date Modified:</b>	<b>6/24/15</b>



MULTI-FAMILY OR COMMERCIAL

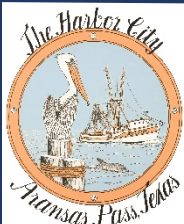


MULTI-FAMILY OR COMMERCIAL ANGLE



SINGLE AND TWO FAMILY RESIDENTIAL

NOTE: NOT TO SCALE



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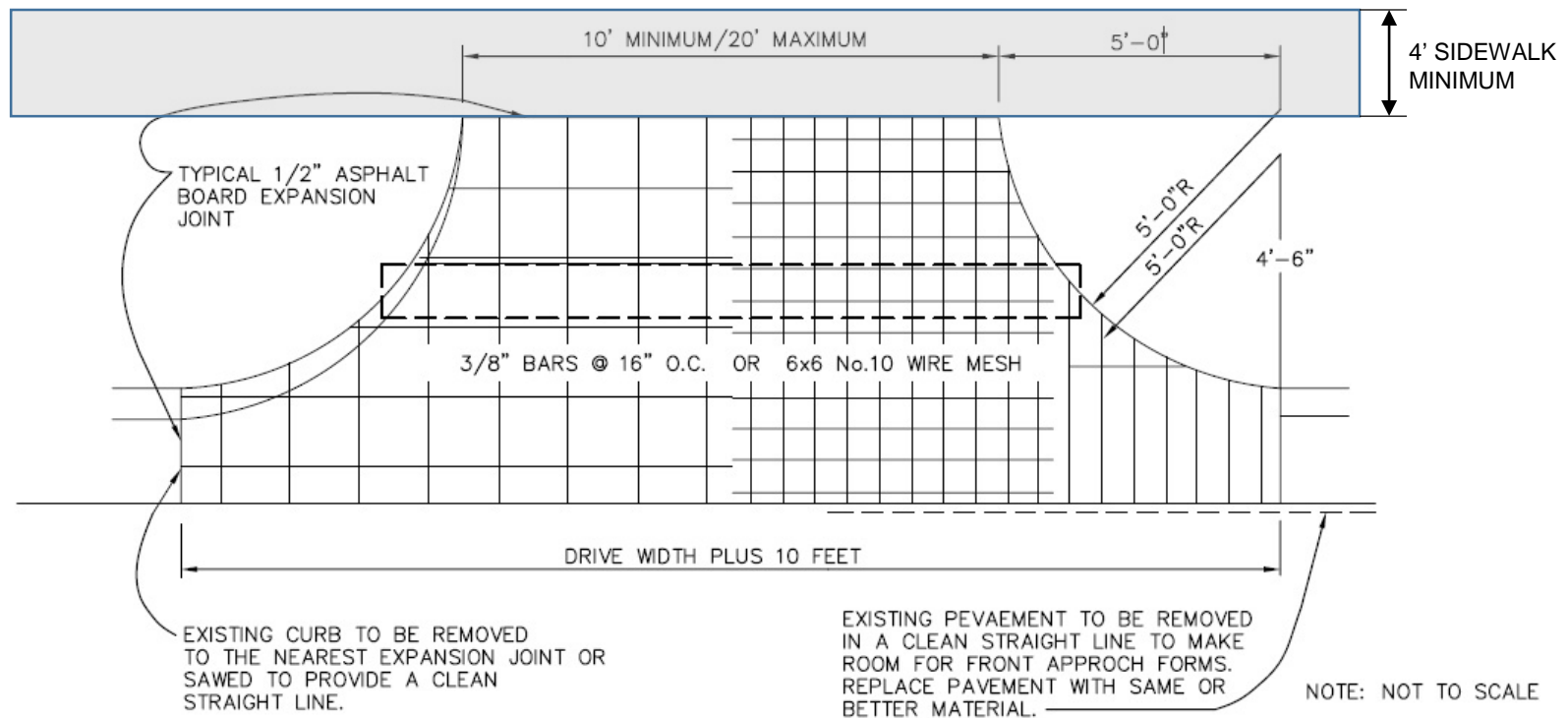
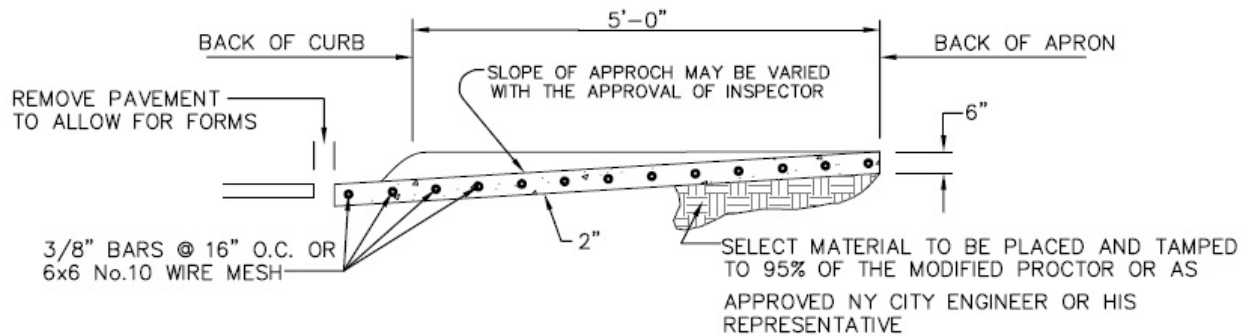
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**Standards Manual**

**Typical Driveway Reinforcement Detail  
Single Family Driveways**

**Standard Detail: DWY-1**

**Date Modified: 6/24/15**



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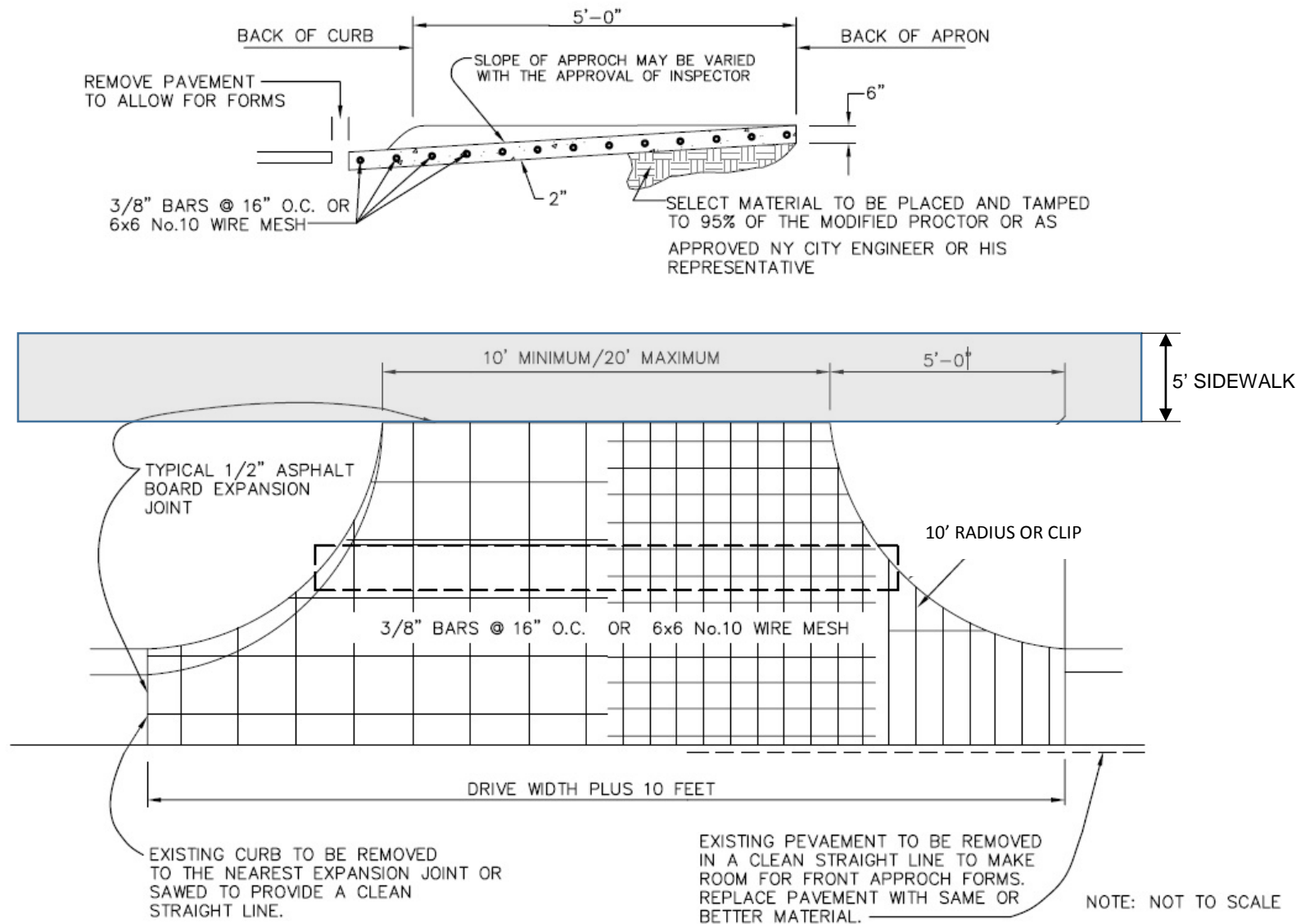
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### Standards Manual

Typical Driveway Reinforcement Detail  
Single Family Driveways

Standard Detail: DWY-2

Date Modified: 6/24/15



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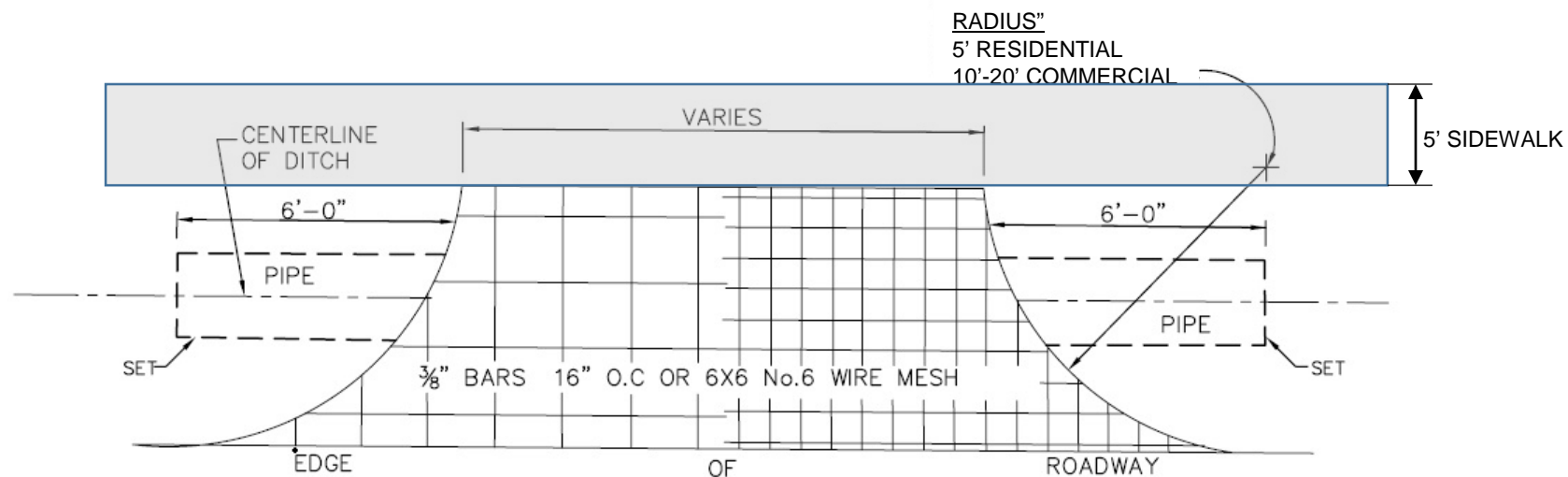
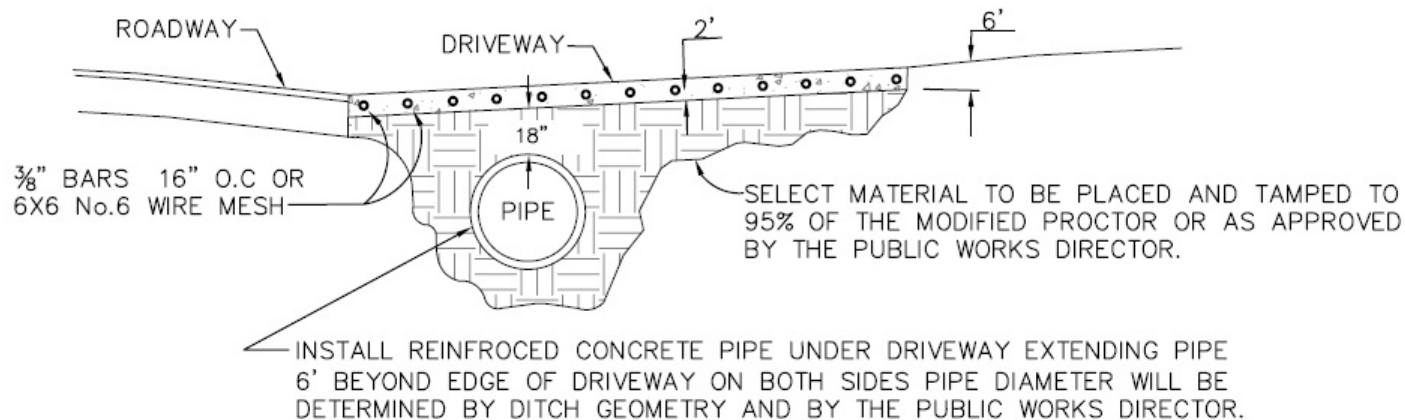
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### Standards Manual

#### Typical Driveway Reinforcement Detail Multi-Family & Commercial Drives

Standard Detail: DWY-3

Date Modified: 6/24/15



NOTE: NOT TO SCALE



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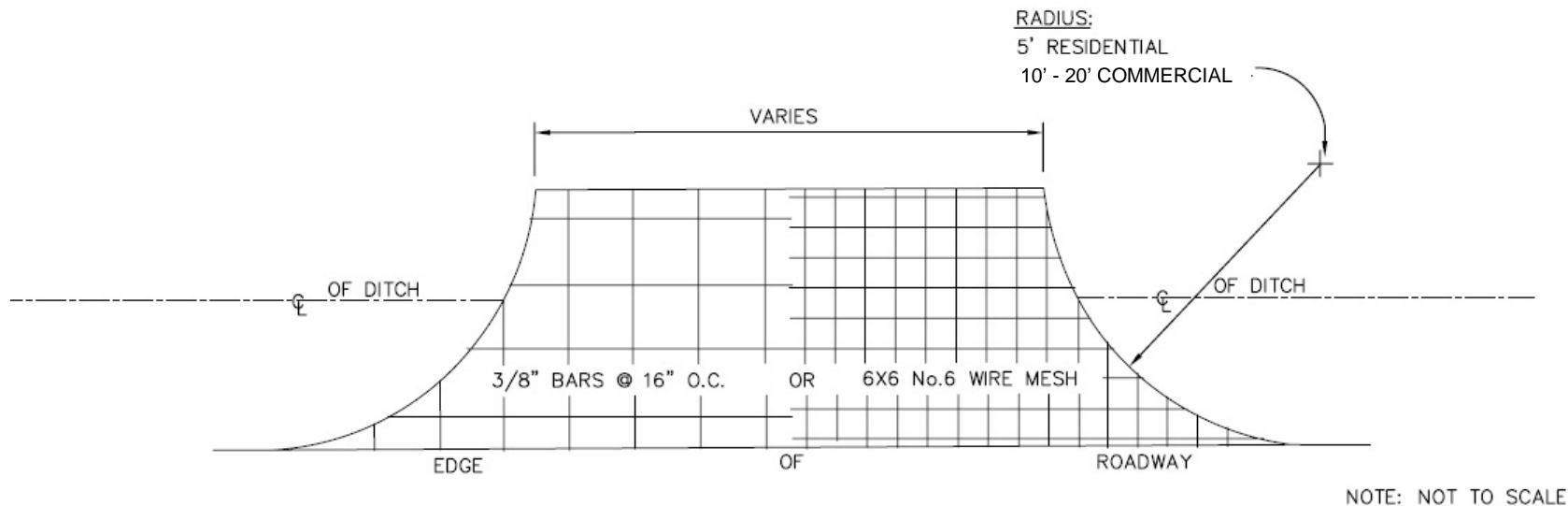
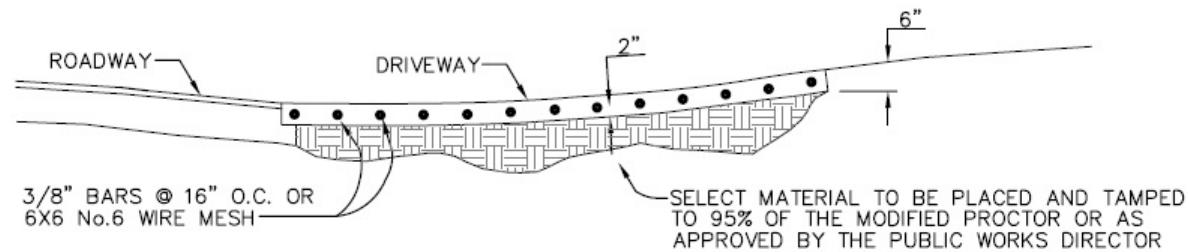
### Standards Manual

Typical Driveway Reinforcement Detail Non-Curb & Gutter  
Streets With Deep Ditch Crossing

Standard Detail: DWY-4

Date Modified: 6/24/15

DRIVEWAY TO CONFORM TO DITCH CROSS-SECTION IF DEPTH  
IS NOT PROHIBITIVE



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### Standards Manual

Typical Driveway Reinforcement Detail Non-Curb & Gutter  
Streets With Shallow Ditch Crossing

Standard Detail: DWY-5

Date Modified: 6/24/15